The Lancet - Saturday 1 August 1959

RESCUE BREATHING

A Modification

A. RUBEN
Med. Lic. Stockholm
DIRECTOR, DEPARTMENT OF ANESTHESIOLOGY, CENTRALLAZARETTET, KARLSKRONA, SWEDEN

J. O. ELAM
M. D. Johns Hopkins
DIRECTOR, DEPARTMENT OF ANESTHESIOLOGY, ROSWELL PARK MEMORIAL INSTITUTE, BUFFALO 3, N.Y., U.S.A.

H. RUBEN
Cand Med. Copenhagen
DIRECTOR, DEPARTMENT OF ANAESTHESIA, THE FINSEN INSTITUTE, COPENHAGEN

RECENT studies (Gordon et al. 1958, Safar, Escarraga, and Elam 1958, Nims et al. 1951) have shown that manual artificial respiration is not effective in every case. Sometimes the methods used do not ensure a patent airway. Moreover, even when the airway is patent, manual methods may be ineffective in patients whose lung and chest compliance is reduced and who have correspondingly less gaseous exchange.

Elam (1954), Gordon (1958), and Safar (1958) have shown that, properly used, artificial respiration by expired air (rescue breathing) can always provide a sufficient volume of air, achieving adequate oxygenation and elimination of carbon dioxide (Greene et al. 1957). This, however, does not necessarily mean that rescue breathing is preferable in actual practice. Questions to be considered are whether the method can be taught and whether the layman can use it effectively. Two of us found that in fact the methods of rescue breathing so far described often failed in these respects (Elam and Ruben). Laymen had difficulty in maintaining a free airway and also in ensuring a good enough seal, and the result was inadequate inflation. Furthermore, important details of the technique were sometimes forgotten. To overcome these difficulties, a new method of expired-air resuscitation was devised, as follows:

The victim is placed on his back. Standing on one side, the rescuer fully extends the victim's head, using one hand on top of the head and the other below the neck to help the tilt (see figure). The rescuer now inhales deeply and opens his mouth *widely*. He then places his mouth on the victim's face *around* the mouth, and, having made an airtight seal, blows forcefully in adults, delicately in infants and children.

When the chest is seen to expand, contact with the face is interrupted, and the victim is allowed to exhale passively. The rescuer inhales deeply again, and the inflation cycles are continued. During inflations and while the victim is exhaling, the tilt of the head is maintained. Any flexion of the neck will diminish the patency of the airway, and part of the air may be blown into the victim's stomach.

If the abdomen is seen to bulge during inflations, a slight steady pressure should be exerted with one hand on the abdomen below the left ribs, while the tilt of the head is maintained with the other hand on top of the victim's head.

Usually there is no leakage through the nose during inflation—possibly because the soft palate is blown against the pharyngeal wall. If necessary, however, such leakage can be prevented by the rescuer resting his cheek against the victim's nostrils. Reluctance of the rescuer to contact the face of the victim directly may be reduced by placing a handkerchief over the victim's face before the inflations are started.

A simple alternative is to inflate the lungs through the nose. In this case one hand still produces a similar tilt of the head, but the victim's mouth is kept closed by pulling the chin with the other hand. Inflation through the nose is probably preferable because it is less apt to be accompanied by gastric inflation.

Radiographic studies (Asmussen; Safar, Escarraga, and Chang) confirm that extension of the head is essential to open up the airway in the posterior part of the pharynx. Pulling the jaw forward with fingers behind the ramus of the mandible, which is often advocated in resuscitation techniques, will almost always provide an open airway at the base of the tongue; but laymen find this manœuvre difficult to remember as well as difficult to perform (Elam and Ruben). Pulling the jaw forward with one finger inside the victim's mouth was easy to teach and was easily remembered, but this technique introduced among others the problem of air leakage during inflation.

A trial of the new method was made by 28 laymen on anæsthetised patients (some of whom had been curarised), a recording pneumograph being used to assess efficiency. The technique proved easy to teach and easy to perform, and no particular difficulty was noted in edentulous patients. The method has since been further tested on more than 300 unconscious patients, in only 3 of whom was extension of the head insufficient to ensure an open airway.

Because of its simplicity and ease of learning and remembering we think that more will be gained by introducing this technique to laymen than will be lost by not being able to ensure an open airway in every case.

Method of tilting the head to maintain a patent airway.

Despite some reluctance from potential rescuers, rescue breathing is already being used in actual emergencies. Certainly few people would hesitate to use the method, in case of need, for a member of their family, and we think that everyone should know that it is better than the manual methods now widely taught.

Summary

Rescue breathing is a method of artificial respiration in which the rescuer repeatedly applies his mouth to the victim's mouth or nose and exhales.

Studies of the method have shown that laymen often fail to obtain and maintain the necessary free airway. They do not remember to hold the jaw forward, or they do not do this properly.

An alternative way of ensuring free airway is to tilt the patient's head back wards, and keep the neck fully extended. This is simpler to remember and to practise, and it is nearly always effective.

Practical tests have confirmed the efficacy of this method as part of the rescue breathing technique.

REFERENCES

Asmussen, E. Personal communication.
Elam, J. O., Brown, E. S., Elder, J. D. (1954), *New Engl. J. med.*, **250**, 749.
Elam, J. O., Ruben, H. (to be published).
Gordon, A. S., Frye, C. W., Gittelson, L., Sadove, M. (1958) *J. Amer. med. Ass.* **167**, 320.
Greene, D. G., Bauer, R. O., Janney, C. E., Elam, J. O. (1957) *J. appl. Physiol.* **11**, 313.
Nims, R. G., Conner, E. H., Botelho, S., Comroe, J. H. (1951) *ibid.* **4**, 486.
Safar, P., Escarraga, L. A., Chang, F. (in the press).
—— —— Elam, J. O. (1958) *New Engl. J. Med.* **258**, 671.

PLASMA FIBRINOGEN ACTIVITY IN PREGNANCY

THEODORE GILLMAN
D. Sc., M. B. W'srand
PROFESSOR OF PHYSIOLOGY

S. S. NAIDOO
M. Sc. Calcutta
RESEARCH ASSOCIATE

MICHAEL HATHORN
M. B., B. Sc. (Eng.) W'srand
RESEARCH ASSOCIATE
DEPARTMENT OF PHYSIOLOGY,
UNIVERSITY OF NATAL,
DURBAN, SOUTH AFRICA

UP to the menopause, women develop coronary thrombosis far less often than men; but later in life the incidence in the two sexes becomes similar. This suggests that sex hormones play an important part in maintaining vascular integrity. In rats sex hormones have been shown to modify plasma fibrinogen and fibrinolytic activity (Gillman and Naidoo 1958, Gillman, Naidoo, and Hathorn 1958). Since plasma fibrinogen and fibrinolytic activity may have significant roles in predisposing towards or preventing endarterial fibrin deposits and mural thrombus formation (Astrup 1956, Gillman 1957, 1958, Gillman, Naidoo, and Hathorn, 1958), we decided to study their activity in two conditions associated with alterations in sex-hormone balance—namely, pregnancy and the puerperium.

Using a method for determining the presence or absence of lysis in clots after a standard period, Biezenski and Moore (1958) demonstrated a marked decrease in the proportion of pregnant women showing complete lysis in the later months of pregnancy and in labour. Immediately after delivery, there was a rapid rise in the proportion of patients showing complete lysis.

In a preliminary study of twenty pregnant women, using Bidwell's modification of the method of Biggs and Macfarlane (1953), we were unable to detect differences in fibrinolytic activity before and after delivery. In the same patients, however, the euglobulin-lysis-time (E.L.T.) appeared to be a more sensitive indicator of the changes taking place after delivery, and this was therefore used in the present study.

Materials and Methods

Pregnant and parturient women were selected from the antenatal clinic and labour wards of King Edward VIII Hospital. The subjects, who were medically healthy and obstetrically normal, were selected at random, irrespective of the duration of pregnancy. For later analysis of data, they were placed in groups as shown in the table and fig. 1. In twelve women, repeated determinations were made during labour and up to 48 hours post partum (figs. 2 and 3). Twenty African nurses served as non-pregnant controls.

Collection of blood.—All blood-samples were collected between 9.30 and 10 A.M. The subjects were not under basal conditions. Specimens were obtained as follows: A no. 11 needle was introduced into the antecubital vein after the skin had been cleaned with ether. The first few drops of blood were allowed to escape and 5 ml. of freely flowing blood was collected into 10×70 mm. tubes containing 0.5 ml. of 3.8% sodium citrate solution. The tubes were immediately placed in melting ice and transported to the laboratory. All tests were made on this blood within 1 hour.

Fibrinolysis.—The euglobulin-lysis-time (E. L. T.) was determined in duplicate, according to the method described by von Kaulla (1958).

Plasma-fibrinogen was estimated in duplicate as tyrosine according to the method of Folin and Ciocalteau (1927). A conversion factor of 3.45 was used to express the results as mg. fibrin per 100 ml. plasma.

Statistical methods.—Plasma-fibrinogen values approximated to the normal distribution, and the "t" test was used to determine the probability of differences between means. Euglobulin-lysis-times, however, did not show a normal distribution, and therefore the median values were recorded for each group, probabilities of differences between the groups being calculated by the Mann-Whitney U-test (Siegel 1956).

Results

Our findings on plasma fibrinogen and fibrinolytic activity are summarised in the table and figs. 1 - 3.

Plasma-fibrinogen levels—The mean plasma-fibrinogen in our patients showed significant and progressive increases above the control level until the 36th week of pregnancy. There were no notable changes during labour or shortly after delivery.

Fibrinolytic activity.—By the 13-28th weeks of pregnancy, there was a highly significant increase in E.L.T., indicating a profound drop in fibrinolytic activity. Thereafter the E.L.T. remained high until after the second stage of labour. Shortly after delivery there was an abrupt decrease in E.L.T., indicating a rise in fibrinolytic activity. The median E.L.T. in women studied 3 - 21 days after delivery decreased still further and no longer differed significantly from the median value obtained in non-pregnant control women.

These findings were confirmed in twelve women in whom E.L.T. was estimated both during labour and 24 - 18 hours post partum (figs. 2 and 3).

Discussion

Our results thus confirm, using another method and in another racial group, the occurrence of decreased plasma fibrinolytic activity during pregnancy, as well as the sudden increase shortly after delivery found by Biezenski and Moore (1958). The increased fibrinogen levels, repeatedly noted in pregnant European women by previous investigators (Gram 1921, Foster 1924, Plass and Maxwell 1926, Keunan 1955), were also demonstrated in African

PLASMA FIBRINOGEN AND FIBRINOLYSIS-TIME DURING AND AFTER PREGNANCY

Group	No. of cases	Mean age (years)	Plasma-fibrinogen (mg. per 100 ml.)		Euglobulin-lysis-time (mins.)		
			mean ± S. E.	p*	median (range)	p**	
Non-pregnant	20	25	351 ± 14	0.02	130 (70-400)	0.001	
13-28 weeks pregnant	22	24	408 ± 15	0.01	370 (150-480)	0.38	
29-36 weeks pregnant	27	24	505 ± 23	0.1	315 (135-525)	0.21	
36+ weeks pregnant	15	30	563 ± 16	0.2	375 (240-600)	0.9	
Labour — 1st stage	20	23	519 ± 26	0.2	373 (260-720)	0.73	
Labour — 2nd stage	11	21	593 ± 34	0.8	364 (295-680)	0.05	
0-4 hours post partum	18	25	541 ± 41	0.8	240 (81-600)	0.05	0.001
5-24 hours post partum	29	25	528 ± 27	0.4	170 (100-540)	0.45	
24-48 hours post partum	21	26	568 ± 28	0.9	160 (100-245)	0.53	
3-21 days post partum	22	23	573 ± 32		155 (105-240)		

* "t" test. ** Mann-Whitney U test.
In each line *p* refers to differences between observations in that line and the next.

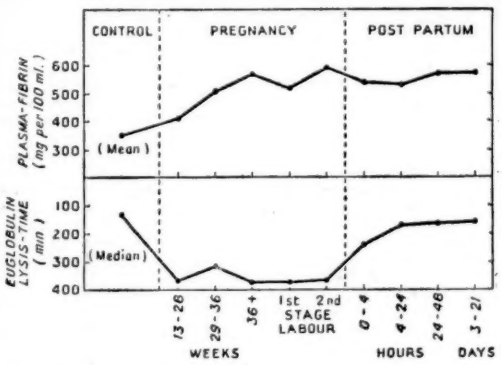

Fig. 1.—Plasma-fibrinogen and euglobulin-lysis-time in control, pregnant, and parturient African women.

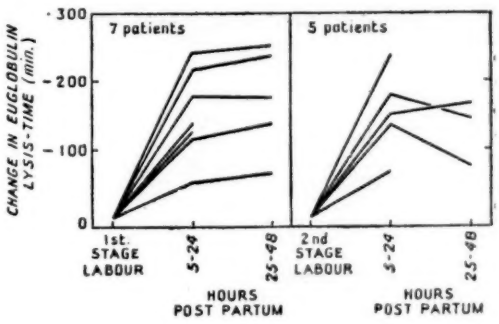

Fig. 2.—Changes in euglobulin-lysis-times in seven patients after delivery.
Fig. 3.—Changes in euglobulin-lysis-times in five patients after delivery.

women.

An increase in the fibrinogen content of the plasma itself prolongs the time taken for clots to lyse in vitro (Freiman and Cliffton 1958). Thus our findings of increased plasma-fibrinogen levels in the early stages of pregnancy might account for the increased E.L.T. at this time. However, the abrupt decrease in E.L.T. alone following delivery seems to rule out this possibility, at least during labour and immediately after delivery.

The fact that during the precipitation of englubulins the antifibrinolysins remain in solution (von Kaulla and Schultz 1958) suggests that a real increase in plasma fibrinolytic activity immediately follows delivery. Whether or not there is any change in plasma-antifibrinolysin at this time, however, is now being investigated by us.

We have previously shown in rats that plasma fibrinogen and fibrinolytic activity may be modified by gonadectomy and sex-hormone implants (Gillman and Naidoo 1958, Gillman, Naidoo, and Hathorn 1958). In female baboons, plasma-fibrinogen levels fluctuate during the menstrual cycle (Cohen 1954) as does E.L.T. (Gillman, Naidoo, and Pillay, unpublished data), and in man also, Smith and Smith (quoted by Clifton 1958) have demonstrated alterations in plasma-fibrinolysins during the menstrual cycle. Furthermore circulating œstrogens and the hormone relaxin both diminish shortly after parturition. Hence in both animals and man, plasma fibrinolytic activity may be influenced by sex hormones, and it may therefore be possible to attribute our findings of changes in E.L.T. to the effects of sex-hormone changes in pregnancy.

There is also evidence of increased adrenal activity during pregnancy. Migeon et al. (1956) and Martin and Mills (1958) found definite increases in urinary ketosteroids and circulating hydrocortisone at this time, while aldosterone excretion also rises, on an average more than sixfold, by the third trimester (Kumar, Feltham, and Gornall 1959). Moreover Kwaan, MacFadzean, and Cook (1956) and Kwaan and MacFadzean (1956) have shown in patients with cirrhosis, as well as in animals, that plasma fibrinolytic activity can be considerably diminished by corticotrophin. These facts suggest that alterations in adrenal function may also play a part in promoting the decreased plasma fibrinolytic activity observed during pregnancy.

It thus seems justifiable to suggest that plasma fibrinolytic activity and fibrinogen are influenced by a subject's endocrine pattern. We have previously suggested that the higher plasma fibrinolytic activity found in African men (Gillman, Naidoo, and Hathorn 1957) may in some way be related to the lower incidence of coronary thrombosis in Africans. However, the relevance of our present findings to this hypothesis remains to be decided.

Summary

Plasma fibrinogen and fibrinolytic activity (euglobulin-lysis-time) were determined in pregnant and non-pregnant African women at various stages of pregnancy and the puerperium.

Plasma-fibrinogen levels rose significantly during the early months of pregnancy, remaining elevated into the puerperium.

Plasma fibrinolytic activity decreased significantly during the early months of pregnancy and remained low until the second stage of labour. Immediately following delivery, there was a significant rise to control levels within the first 24 hours post partum.

We suggest that endocrine changes during pregnancy may be responsible for alterations in plasma fibrinolytic activity.

We thank the Schlesinger Organisation, the Wellcome Trust, and the Parke-Davis Co, for their financial assistance; Dr. S. Disler, superintendent of King Edward VIII Hospital; Prof. D. Crichton of the department of obstetrics for access to his patients; Sister A. Cullen for her cooperation; and Mr. G. G. Pillay for technical assistance. The Parke-Davis Company provided supplies of "Thrombin Topical".

REFERENCES

Astrup, T. (1956) *Lancet*, **ii**, 516.
Biezenski, J.J., Moore, H.C. (1958), *J. clin. Path.*, **11**, 306.
Biggs, R., Macfarlane, R.G. (1953), Human Blood Coagulation and its Disorders. Oxford.
Cliffton, E.E. (1958) *Acta hæmat.* **20**, 76.
Cohen, S. (1954) M.D. thesis.
Folin, O., Clocalteau, V. (1927) *J. biol. Chem.* **73**, 627.
Foster, D.P. (1924) *Arch. intern. Med.* **34**, 301.
Freiman, A.H., Cliffton, E.E. (1958), *Thromb. Diath. Hæm.* **2**, 269.
Gillman, T. (1957) *Lancet*, **ii**, 1117.
—— (1958) *ibid.* **ii**, 801.
—— Naidoo, S.S. (1958) *Endocrinology*, **62**, 92.
—— —— Hathorn, M. (1958) *Clin. Sci.* **17**, 393.
Gram, H.C. (1921) *Arch. intern. Med.* **28**, 312.
Kumar, D., Feltham, L.A.W., Gornall, A.G. (1959) *Lancet*, **i**, 541.
Keuman, A.L. (1955) *Amer. J. med. Sci.* **229**, 695.
Kwaan, H.C., MacFadzean, A.J.S. (1956) *Lancet*, **i**, 136.
—— —— Cook, J. (1956) *ibid.* **i**, 132.
Martin, J.D., Mills, I.H. (1958) *Clin. Sci.* **17**, 137.
Migeon, C.J., Prystowsky, H., Grumbach, M.M., Byron, M.A. (1956), *J. clin. Invest.* **35**, 488.
Plass, E.D., Matthew, C.W. (1958), *Amer. J. Obstet. Gynec.* **12**, 346.
Von Kaulla, K.W. (1958) *Circulation*, **17**, 187.
—— Schultz, R.L. (1958), *Amer. J. clin. Path.* **29**, 104.

TREATMENT OF STATUS EPILEPTICUS BY MUSCLE RELAXANTS AND ARTIFICIAL RESPIRATION

J.M. EVANSON
M.B., M.Sc. Manc.
LATE SENIOR HOUSE-OFFICER, DEPARTMENT OF NEUROSURGERY, MANCHESTER ROYAL INFIRMARY

STATUS epilepticus can be fatal, and those who survive it may suffer permanent neurological dissability ranging from blindness to dementia. These complications have been well documented, and, since Scholz's comprehensive monograph in 1951, further reports have appeared.

Meyer, Beck, and Sheperd (1955) reported the case of a boy of 9, who, during the course of Still's disease, passed into status epilepticus, and on recovery was found to be demented. When he died, 12 months later, necropsy revealed widespread cerebral damage which was attributed to "circulatory and anoxic disturbances" associated with the status epilepticus.

Small and Woolf (1957) described a fatal case of delayed posttraumatic status epilepticus in a boy of 13, with histological evidence of extensive anoxic cerebral changes. They laid stress on respiratory embarrassment in the production of the anoxic lesions. "Systemic anoxia of convulsive origin" was considered by Fowler (1957) also to be the cause of severe fatal neurological lesions resulting from protracted seizures complicating febrile illnesses in young children.

Even more dramatic than the reports of gross neurological damage (*Lancet* 1957) is direct observation of the effect of a convulsion on the exposed brain during operations under local anæsthesia; such episodes were witnessed during the debridment of war wounds. The distension of the cortical veins, and brain swelling, indicate that the damaging effects of a rapid rise of pressure (with the formation of pressure cones &c.) are added to the anoxic changes.

Status epilepticus may be a terminal event in incurable cerebral illness, such as intracranial malignancy. On the other hand (as in some of the cases mentioned above), it may complicate a reversible febrile illness, a benign and easily removable meningioma, or a potentially recoverable head injury. As a single episode in the life of a person with idiopathic epilepsy, it can be responsible for serious neurological deterioration. Except where it is obviously a terminal event, therefore, status epilepticus should be controlled as expeditiously as possible in order to avoid sequelæ. In most cases early and vigorous treatment with established anticonvulsants will control the fits, but in the following case of a child, although the usual methods failed, success was achieved with muscle relaxants and artificial respiration.

Case-report

A boy of 9 was admitted urgently to the neurosurgical unit on the evening of March 31, 1958 (no. 58/7253). He had been well until 3 weeks previously when he started to vomit intermittently and to complain of left-sided frontal headaches. During the 4 days before admission he had two attacks of sudden loss of consciousness with opisthotonus—presumably due to acutely raised intracranial pressure.

He was cooperative but drowsy, with bilateral papilloedema, bilateral ptosis, loss of upward movement of the eyes, and right facial weakness. He was pyrexial, and showed meningism with a positive Kernig's sign.

On the presumption that he had a left frontal lesion of considerable size producing dangerous cerebral compression, a left frontal burr-hole was made immediately. This revealed an intracerebral frontal abscess, from which a large quantity of pus was aspirated. With repeated aspiration, and instillation of crystalline penicillin in high dosage into the abscess cavity, he improved; but several days later he began to deteriorate, and he developed a striking dysphasia. An electroencephalogram showed a focus in the left parietal region, and a further burr-hole was made and another abscess located in this region. This was similary treated. Cultures of the pus grew a pneumococcus sensitive to all antibiotics. Pyograms suggested that the two abscesses communicated deep to the sylvian fissure.

18 days later the patient's condition was very much improved. Although still somewhat dysphasic, he was fully alert and taking a keen interest in his surroundings. On that morning, immediately after routine aspiration of the parietal abscess and instillation of crystalline penicillin 250.000 units and "Thorotrast" 1 ml., there began a series of right-sided convulsions; which involved the trunk so much that they caused severe respiratory embarrassment. Oxygen was administered, and soluble phenobarbitone 60 mg. was immediately given intravenously, without effect on the seizures. During the next 40 minutes paraldehyde 3 ml. intramuscularly and 8.5 ml. intravenously (in a saline drip) was given, but there was no appreciable reduction in the severity of the fits; indeed they were becoming worse, and cyanosis was developing despite continuous oxygen administration. We suspected that penicillin in high concentration had leaked from the abscess cavity on to the cortex providing a strong epileptogenic stimulus. We decided that we should try the effects of full general anæsthesia, and if this failed the cortex should be exposed and irrigated to lessen the irritative effect of the penicillin. The patient was therefore given 2½ % thialbarbitone ('Kemithal') 6 ml. intravenously, and with the aid of topical anæsthesia a cuffed endotracheal tube was passed (Dr. A.R. Hunter). Despite this the fits continued. 1 % procaine 10 ml. given intravenously failed also to control the fits. At this stage suxamethonium 50 mg. was given intravenously, and artificial respiration was started with the Blease intermittent positive-pressure artificial respirator. On this regime there was a striking improvement. His natural colour at once returned, and his blood-pressure, which had been steadily falling, rose again. Thereafter suxamethonium 50 mg. was given every 15-20 minutes, and artificial respiration was maintained (Dr. W.K. Jones). This gave adequate pulmonary ventilation.

About 3½ hours after the fits started, and 1½ hours after the induction of anæsthesia, operation was carried out (Mr. R.T. Johnson). A left parietal bone-flap was raised and temporarily removed (as a safeguard against the effects of possible brain swelling later), the dura was opened, and the cortex, which looked normal, was thoroughly irrigated with normal saline.

After operation, whenever attempts were made to withdraw the muscle relaxant, the convulsions gradually returned: twitching of the eyelids and face rapidly spread to the right arm, trunk, and right leg. These fits were associated with respiratory embarrassment and developing cyanosis. Accordingly, suxamethonium was continued intravenously; a dose of 50 mg. every 15-20 minutes was necessary to control the fits. Artificial respiration was continued, with a tidal volume of 300 ml.; the cuff on the endotracheal tube was deflated 2-hourly, and any accumulated secretions were aspirated regularly via the endotracheal tube.

8 hours after initial curarisation the muscle relaxant was finally withdrawn; although unilateral fits had returned they were now less vigorous, and the spontaneous respiration seemed adequate. At this stage, with a safe airway and the artificial respirator at hand, Mr. Johnson and Dr. Hunter decided to give anticonvulsant drugs to the point of intolerance to measure their effectiveness. This knowledge was essential if anticonvulsants were needed for later fits.

Thiopentone 500 mg. was dissolved in 500 ml. of 5% dextrose, and given by intravenous drip at a rate of 80 drops per minute. The fits stopped within 2 minutes, but at this stage the radial pulse had become very weak; it disappeared shortly afterwards, and when methoxamine level the fits returned. 30 minutes later mephenesin ('Vasoxine') 5 mg. restored the blood-pressure to a safe ('Myanesin') 0.5 g. dissolved in 200 ml. of 5 % dextrose was run into a vein. Mephenesin has previously controlled jacksonian status epilepticus (Hunter and Waterfall 1948), but it too failed completely.

At this stage 9½ hours after the onset, it was clear that anticonvulsants in high dosage were ineffective. Fortunately the attacks were becoming less frequent

and they were no longer damaging; so routine treatment with phenytoin sodium ('Epanutin') 45 mg. 4-hourly was instituted via a gastric tube. The fits slowly diminished over the next few hours and then stopped.

The patient would tolerate the endotracheal tube no longer, and this was removed. His general condition steadily improved; he recovered consciousness and tried to talk. But over the next 24 hours his respiration became progressively more stridulous, with inspiratory sternal and intercostal recession. This respiratory obstruction, due to laryngeal œdema from the cuffed endotracheal tube which had been in situ for 19 hours made tracheotomy necessary.

After tracheotomy, he made a slow but uninterrupted recovery. For several days he was uninhibited, and we suspected that there was some irrevocable cortical damage. He continued to improve, however, and on discharge 6 weeks after admission he was up and behaving quite naturally; slight dysphasia and a right facial paresis were the only residual signs.

He has since been seen in the outpatient department when his parents reported that mentally he was perfectly normal; there was no dysphasia but the slight facial paresis still persisted.

Discussion

Status epilepticus will often respond to intermittent intramuscular or intravenous paraldehyde or barbiturates if given early enough, but in other cases large and dangerous quantities of these drugs must be given before effective control is secured. The use of local anæsthetics intravenously has been favourably reported by Bernhard et al. (1955) and Taverner and Bain (1958). McWilliam (1958) has used an intravenous preparation of phenytoin sodium, achieving good results in eleven children with repeated convulsions.

It is doubtful whether any anticonvulsant will arrest all cases. In our patient full anæsthesia and a barbiturate intravenously were ineffective even in a dosage which caused a considerable fall in blood-pressure. The relative refractoriness of his status epilepticus was presumably related to the highly epileptogenic stimulus of the cerebral cortex being bathed with concentrated penicillin solution. Status epilepticus may be relatively shortlived and isolated, ceasing spontaneously; meanwhile it is vitally important not only to prevent anoxic brain damage, but also to ensure that milder degrees of anoxia do not play a part in perpetuating the attacks. Quite apart from the relief of anoxia, complete muscular relaxation may produce a striking fall in intracranial pressure (Johnson and Hunter, personal communication 1958).

In this case resort to complete paralysis and artificial respiration was made only when it became clear that other methods of suppression were ineffective, and the fits were embarassing respiratory function. In the management of severe tetanus, paralysis and intermittent positive-pressure respiration has been employed similarly only after heavy sedation has failed to control the spasms although Powell et al. (1958) concluded that all cases not responding to moderate sedation and mephenesin should be treated by complete paralysis and intermittent positive-pressure respiration.

The great problem is to balance the danger of cerebral damage against the hazards of giving large quantities of potentially toxic anticonvulsant drugs. Paralysis and artificial respiration should probably be recommended whenever the seizures persist despite moderate anticonvulsant treatment, and they should be instituted before anoxia and brain swelling have caused irreparable damage.

Summary

A severe case of status epilepticus was managed successfully with paralytic doses of suxamethonium and artificial respiration. The advantages of this method in otherwise intractable cases are briefly discussed.

My thanks are due to Mr. R.T. Johnson for permission to report this case, and for his advice in preparing this paper. I am indebted also to Dr. A.R. Hunter and Dr. W.K. Jones for their helpful criticism.

REFERENCES

Bernhard, C. G., Bohm, E., Hojeberg, S. (1955) *Arch. Neurol. Psychiat., Chicago*, 74, 208.
Fowler, M. (1957) *Arch. Dis. Childh.* 32, 67.
Hunter, A. R., Waterfall, J. M. (1948) *Lancet*, i, 366.
Lancet (1957) ii, 1156.
McWilliam, P. K. A. (1958) *ibid.* ii, 1147.
Meyer, A., Beck, E., Shepherd, M. (1955) *J. Neurol. Psychiat.* 18, 24.
Powell, K. J., Brimblecombe, F. S. W., Stoneman, M. E. R. (1958) *Lancet*, i, 713.
Scholz, W. (1951) Die Krampfschädigungen des Gehirns, Berlin.
Small, J. M., Woolf, A. L. (1957) *J. Neurol. Psychiat.* 20, 293.
Taverner, D., Bain, W. A. (1958) *Lancet*, ii, 1145.

Addendum. —Since this paper was written H.I. Armstrong Nisbet *(Brit. med. J.* 1959, i, 95) has described the successful management of a case of status epilepticus with muscle relaxants and controlled respiration.

Preliminary Communication

CARDIAC RESUSCITATION VIA THE JUGULAR VEIN

WHEN rapid access to the heart is essential, but the circumstances are unfavourable for immediate fullscale thoracotomy, a right intraventricular electrode may fulfil the requirements.

In the treatment of Stokes-Adams seizures the passage of a stimulating electrode to the sino-auricular node is not new. Its entry into the right ventricular cavity is now considered for heart-block, and for ventricular fibrillation.

Surgical heart-block was produced in five dogs by dividing the bundle of His through the right atrium, and an insulated wire electrode was passed down the right jugular vein into the right ventricle. The artificial cardiac pacemaker[1] was then connected to it and to an indifferent skin electrode. In each case there was a satisfactory ventricular response at voltages roughly a quarter of those needed for intramural myocardial stimulation (fig. 1).

Two dogs had electrodes introduced into the right ventricle under radiographic control. No anticoagulants were given. After a week sacrifice showed that the external jugular vein was occluded, that there was a sheath of thrombus surrounding the lead down to the tricuspid valve which did not materially obstruct the superior vena caval return, and that the intraventricular portion of the lead with the exposed electrode was absolutely clean. Two further dogs have now survived for over a month with electrodes in situ.

**Fig. 1—(a) Surgically induced heart-block.
(b) Intraventricular stimulation: the deep downstroke is the stimulus artefact.**

1. Clark, R. M., Ross, D. N., Taylor, D. G., George, R. E. *Lancet*, 1959, i, 392.

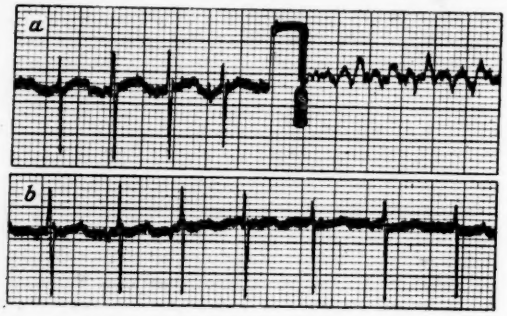

Fig. 2—(a) Normal rhythm followed by artificially induced ventricular fibrillation.
(b) Rhythm restored by intraventricular electrode.

Ventricular fibrillation was elicited by applying two "defibrillation electrodes" to the heart, and passing a somewhat prolonged 50 volt impulse. The electrodes were then disconnected; a right intraventricular and an indifferent skin electrode were connected in place. With an impulse of 200 volts defibrillation was achieved each of the four times it was tried (fig. 2), though three shocks were sometimes needed. Recourse to the usual cardiac surface electrodes was never necessary.

During in-vitro experiments such shocks produced a temperature rise of about 1°C in 5 ml. of blood. Careful inspection of the ventricular endocardium at the end of the experiments showed no macroscopic evidence of burning. Both visually and electrocardiographically the heart beat returned to normal within minutes.

Intraventricular electrodes may prove of particular value in cardiac catheterisation, anæsthesia emergencies, and acute heart-block. The intraventricular pacemaker avoids the considerable discomfort from "external" electrodes; in purely medical cases anticoagulants may not be contraindicated.

It is a pleasure to thank Sir Russell Brock for the facilities he provided, and the Governors of Guy's Hospital from whom I hold a surgical research fellowship.

Thoracic Surgical Unit, Guy's Hospital, London, S.E.1. F. E. WEALE, M. B. Lond., F.R.C.S.

Reviews of Books

World Medical Research: Principles and Practices.

HARRY SUTHERLAND GEAR, M.D., formerly chairman of the executive board, delegate to the World Health Assemblies and assistant director-general of the World Health Organisation; deputy chief health officer, Union of South Africa. London: Butterworth. 1959. Pp. 122. 30s.

THIS account of the work of the World Health Organisation is introduced by a short summary of medical history, and brief sections follow recounting the major endeavours of W.H.O. The uneven living standards of the various countries often bedevil by lack of funds the local application of existing knowledge.

The chapter entitled Difficulties begins the most penetrating section of the book. Surveys made by W.H.O. reveal but seldom tackle and rarely solve the problems. The sheer weight of airborne epidemiologists and statisticians cannot alone crash done the barriers of our ignorance. The subtle keys discovered by Waksman and his successors have done infinitely more towards solving the problem of tuberculosis than the immediately preceding advice on numbers of sanatoria. Conferences and committees are diverting too many of our scientific leaders from the laboratory. As Churchill remarked " A war cannot be conducted by a copious flow of polite conversation ". Increasing ease of travel should be used much more to enable investigators of disease in one country to apply their methods to similar disorders with a higher or lower incidence in other environments. Laboratory science must follow surveys. Planning is not an end in itself; action must follow.

Many readers will be grateful for Dr. Gear's concise survey of the problems ahead.

Fracture Surgery

HENRY MILCH, M.D., F.A.C.S., emeritus attending and consulting orthopaedic surgeon, Hospital for Joint Diseases, New York; ROBERT AUSTIN MILCH, M.D., assistant resident surgeon, Peter Bent Brigham Hospital, Boston. New York : Hoeber-Harber (obtainable from Pitman's Medical Books), 1959. Pp. 470. £7.

IN the past few years several excellent books have appeared, both in this country and in America, on the management of fractures. Some of these have run to several editions, and any work which is to compete with them for the reader's attention must have several notable features to commend it.

This new one is justified on two counts. First, its opening chapters treat in detail, with good illustrations, the general principles of fracture treatment, the mechanism of displacement and reduction, and plaster technique. Secondly, it is distinguished by the number of X-ray photographs it contains, reproduced at a standard which places them among the best to be found in volumes of this sort.

Readings on Medical Care

Edited by the Committee on Medical Care Teaching of the Association of Teachers of Preventive Medicine. Chapel Hill : North Carolina University Press. London : Oxford University Press. 1959. Pp. 708. 52 s.

ONE of the major problems confronting the United States is the provision of good medical care for a rapidly expanding population, at reasonable cost and without sacrificing the freedom of the doctors. Many schemes have been tried—voluntary, commercial, and governmental—and this book is a collection of many of the original documents and papers on the subject. Intended as a source-book of basic information, it has thirteen chapters, each on an aspect of the organisation and administration of medical care; and it gives a comprehensive picture of the changing pattern of thought in the U.S.A. over the past thirty years. The experience of other countries has been regretfully eliminated "owing to space limitations ", and even the recommended " further readings " cover only American experience. Since, as the editors remark, " new suggestions are made almost daily in this era of ferment " it seem a pity that the well-informed evaluation which the book is meant to promote should take no account of the many practical experiments which are being made in other parts of the world. But it will certainly be helpful to those interested in the trends of medical care within the United States.

Bigger's Handbook of Bacteriology (7th ed. London : Baillère, Tindall, and Cox. 1959. Pp. 611. 37s.6d.).—We have waited ten years for the reappearance of this old friend, who now comes in a most pleasing cover, which happily encloses all the old virtues. Progress is not neglected : virology, chemotherapy, disinfection, immunity, classification, streptococci, and the coliforms have all been given new or almost completely new chapters. The fungi and the protozoa, regrettably, have gone. The reason given for their departure is that their adequate presentation would have greatly increased the length of the book and that they now require specialised treatment. The same arguments, one would have thought, would have excluded the viruses; but these are allowed 130 pages, just over a fifth of the book. The truth is that what a student and a general practitioner needs to know about medical microbiology has greatly increased—not merely because enthusiasts have been publishing a lot but because the applications of microbiology to practice have become much more numerous and much less self-evident than they once appeared to be. For good reasons, " Bigger " has always had many warm admirers, among both students and teachers; and this new edition, by Prof. F. S. Stewart, is, in its own way, as good as any of its predecessors.

THE LANCET

LONDON 1 AUGUST 1959

What is an Accident?

In recent years the Ministry of Health, the Royal Colleges, the British Medical Association, the British Orthopædic Association, and a number of individuals have given much thought to the treatment of injuries. Accidents on the roads and elsewhere are not only (very often) personal tragedies but also a steadily increasing drain on our economic and human resources. Whereas to the patient and his friends, arrival at hospital spells relative safety, to those who treat accident cases or organise their treatment this is only the beginning; and the outcome commonly depends very largely on whether the right people, with the right equipment, are ready and waiting to give the right treatment at the right time. The new and urgent recommendations from the British Orthopædic Association which we print on p. 78 are preceded in the original memorandum [1] by a penetrating review of the present situation, and a catalogue of the deficiencies, which deserve widespread attention.

There are of course great difficulties in organising a wholly satisfactory accident service [2,3]. In the ten years since the National Health Service was called upon to coordinate the work of the many different institutions providing medical attention, progress has been made in the care of the injured as of other hospital patients; and the need for further improvement should be seen against the background of what has already been done. It would be a pity if insistence on reform were to destroy public confidence in the existing arrangements; for, even with its unstopped loopholes, the treatment of accidents in this country probably stands comparison with their treatment in any other country. Nevertheless most of us will agree with the British Orthopædic Association that something a good deal better is now possible and necessary. How should it be achieved?

The Association recommends, as a first step towards establishing a nation-wide accident service, that each region should set up a coordinated system in at least one of its areas. In thinking of such a system, there is perhaps a danger that too much emphasis will be placed on its well-equipped and comprehensive centre: for, as the memorandum recognises, the role of the peripheral hospitals will remain important. Limelight on the specialised centres must not cast a shadow over the work done in collecting and screening the casualties on their way. The Association proposes the establishment of accident services as a quasi-military operation, and those with experience of field surgical units or casualty-clearing stations will endorse its decision to vitalise the "forward areas" and "lines of communication". But the task these have to perform has not yet been sufficiently defined. Until we know exactly what is meant by "minor" injury to be treated locally and a "major" injury to be sent to the centre, we cannot have any clear idea of how a comprehensive system will work in practice. The victim himself, or the man who picks him up, cannot be expected to know whether he is "minor" or "major"; indeed, many cases cannot be so distinguished until long after a decision on disposal is necessary. Any plan by which the disposal of accident cases was separated from the disposal of other medical and surgical emergencies might introduce fresh difficulties. As things stand today, decisions on where to send an emergency may be far from easy, and if a distinction has to be made between accident emergencies and others there may be more uncertainty. A case can be made out, in fact, for a review of the arrangements for hospital treatment of *all* emergencies; and the establishment of accident services could provide an opportunity for welcome changes in the structure of the peripheral-hospital system as a whole.

Even where accident hospitals have already been established, much (or even most) of the accident work may still be done elsewhere; and nobody can confidently estimate the magnitude of the proposed shift from one system to another. In one town, with a general hospital and also a well-established and adequate fracture and orthopædic hospital, 60% of cases going to the general hospital's casualty department were accident cases, a quarter of the admissions from the casualty department are accidents, and in some 3% of cases there is room for doubt as to whether the case is an accident or not. The problem of the inebriate with a head injury is a familiar example; but many more subtle distinctions may have to be made before the applicability of an accident service to certain types of emergency can be happily defined. Emergencies in the ear, nose, and throat departments provide important illustrations. Treatment for inhaled foreign bodies may suffer seriously through the patient being sent to the wrong place, or even to the wrong department, "because it was an accident". Where shall we send the person who has taken an overdose of sedatives (a very common emergency), or has been rescued from a gas-filled room, or is bleeding from a varicose vein? For those who like splitting hairs, what about the man with a paraphimosis? The memorandum points out clearly that central accident departments need to be closely associated with comprehensive hospitals; but similarly at the periphery accidents ought not to be inconveniently separated from the day-to-day running of the emergency work, and from the facilities of the special departments. At the periphery, the accident service must work within the framework of the existing hospital service; and, if need be, this framework will have to be modified to suit the accident.

If casualty departments "as they used to be known" are to exist no longer, what is to replace them? LOWDEN [4], in 1956, in a general examination of casualty departments, hoped they might provide

1. From the Association, at 47, Lincoln's Inn Fields, London, W.C.2.
2. *Lancet*, 1957, i, 875.
3. *ibid.* 1959, i, 1278.
4. Lowden, T. G. *ibid.* 1956, i, 955, 1006, 1060.

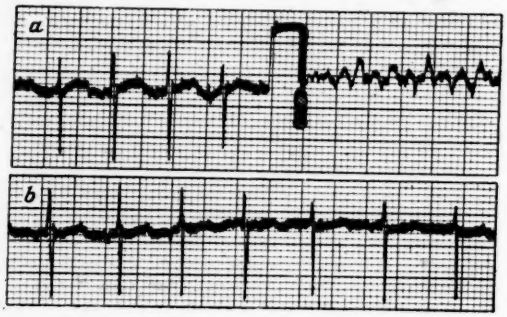

Fig. 2—(a) Normal rhythm followed by artificially induced ventricular fibrillation.
(b) Rhythm restored by intraventricular electrode.

Ventricular fibrillation was elicited by applying two "defibrillation electrodes" to the heart, and passing a somewhat prolonged 50 volt impulse. The electrodes were then disconnected; a right intraventricular and an indifferent skin electrode were connected in place. With an impulse of 200 volts defibrillation was achieved each of the four times it was tried (fig. 2), though three shocks were sometimes needed. Recourse to the usual cardiac surface electrodes was never necessary.

During in-vitro experiments such shocks produced a temperature rise of about 1°C in 5 ml. of blood. Careful inspection of the ventricular endocardium at the end of the experiments showed no macroscopic evidence of burning. Both visually and electrocardiographically the heart beat returned to normal within minutes.

Intraventricular electrodes may prove of particular value in cardiac catheterisation, anæsthesia emergencies, and acute heart-block. The intraventricular pacemaker avoids the considerable discomfort from "external" electrodes; in purely medical cases anticoagulants may not be contraindicated.

It is a pleasure to thank Sir Russell Brock for the facilities he provided, and the Governors of Guy's Hospital from whom I hold a surgical research fellowship.

Thoracic Surgical Unit, Guy's Hospital, London, S.E.1. F. E. WEALE, M. B. Lond., F.R.C.S.

Reviews of Books

World Medical Research: Principles and Practices.

HARRY SUTHERLAND GEAR, M.D., formerly chairman of the executive board, delegate to the World Health Assemblies and assistant director-general of the World Health Organisation; deputy chief health officer, Union of South Africa. London: Butterworth. 1959. Pp. 122. 30s.

THIS account of the work of the World Health Organisation is introduced by a short summary of medical history, and brief sections follow recounting the major endeavours of W.H.O. The uneven living standards of the various countries often bedevil by lack of funds the local application of existing knowledge.

The chapter entitled Difficulties begins the most penetrating section of the book. Surveys made by W.H.O. reveal but seldom tackle and rarely solve the problems. The sheer weight of airborne epidemiologists and statisticians cannot alone crash done the barriers of our ignorance. The subtle keys discovered by Waksman and his successors have done infinitely more towards solving the problem of tuberculosis than the immediately preceding advice on numbers of sanatoria. Conferences and committees are diverting too many of our scientific leaders from the laboratory. As Churchill remarked " A war cannot be conducted by a copious flow of polite conversation ". Increasing ease of travel should be used much more to enable investigators of disease in one country to apply their methods to similar disorders with a higher or lower incidence in other environments. Laboratory science must follow surveys. Planning is not an end in itself; action must follow.

Many readers will be grateful for Dr. Gear's concise survey of the problems ahead.

Fracture Surgery

HENRY MILCH, M.D., F.A.C.S., emeritus attending and consulting orthopaedic surgeon, Hospital for Joint Diseases, New York; ROBERT AUSTIN MILCH, M.D., assistant resident surgeon, Peter Bent Brigham Hospital, Boston. New York : Hoeber-Harber (obtainable from Pitman's Medical Books), 1959. Pp. 470. £7 .

IN the past few years several excellent books have appeared, both in this country and in America, on the management of fractures. Some of these have run to several editions, and any work which is to compete with them for the reader's attention must have several notable features to commend it.

This new one is justified on two counts. First, its opening chapters treat in detail, with good illustrations, the general principles of fracture treatment, the mechanism of displacement and reduction, and plaster technique. Secondly, it is distinguished by the number of X-ray photographs it contains, reproduced at a standard which places them among the best to be found in volumes of this sort.

Readings on Medical Care

Edited by the Committee on Medical Care Teaching of the Association of Teachers of Preventive Medicine. Chapel Hill : North Carolina University Press. London : Oxford University Press. 1959. Pp. 708. 52 s.

ONE of the major problems confronting the United States is the provision of good medical care for a rapidly expanding population, at reasonable cost and without sacrificing the freedom of the doctors. Many schemes have been tried—voluntary, commercial, and governmental—and this book is a collection of many of the original documents and papers on the subject. Intended as a source-book of basic information, it has thirteen chapters, each on an aspect of the organisation and administration of medical care; and it gives a comprehensive picture of the changing pattern of thought in the U.S.A. over the past thirty years. The experience of other countries has been regretfully eliminated " owing to space limitations ", and even the recommended " further readings " cover only American experience. Since, as the editors remark, " new suggestions are made almost daily in this era of ferment " it seem a pity that the well-informed evaluation which the book is meant to promote should take no account of the many practical experiments which are being made in other parts of the world. But it will certainly be helpful to those interested in the trends of medical care within the United States.

Bigger's Handbook of Bacteriology (7th ed. London : Baillère, Tindall, and Cox. 1959. Pp. 611. 37s.6d.).—We have waited ten years for the reappearance of this old friend, who now comes in a most pleasing cover, which happily encloses all the old virtues. Progress is not neglected : virology, chemotherapy, disinfection, immunity, classification, streptococci, and the coliforms have all been given new or almost completely new chapters. The fungi and the protozoa, regrettably, have gone. The reason given for their departure is that their adequate presentation would have greatly increased the length of the book and that they now require specialised treatment. The same arguments, one would have thought, would have excluded the viruses; but these are allowed 130 pages, just over a fifth of the book. The truth is that what a student and a general practitioner needs to know about medical microbiology has greatly increased—not merely because enthusiasts have been publishing a lot but because the applications of microbiology to practice have become much more numerous and much less self-evident than they once appeared to be. For good reasons, " Bigger " has always had many warm admirers, among both students and teachers; and this new edition, by Prof. F. S. Stewart, is, in its own way, as good as any of its predecessors.

THE LANCET

LONDON 1 AUGUST 1959

What is an Accident?

In recent years the Ministry of Health, the Royal Colleges, the British Medical Association, the British Orthopædic Association, and a number of individuals have given much thought to the treatment of injuries. Accidents on the roads and elsewhere are not only (very often) personal tragedies but also a steadily increasing drain on our economic and human resources. Whereas to the patient and his friends, arrival at hospital spells relative safety, to those who treat accident cases or organise their treatment this is only the beginning; and the outcome commonly depends very largely on whether the right people, with the right equipment, are ready and waiting to give the right treatment at the right time. The new and urgent recommendations from the British Orthopædic Association which we print on p. 78 are preceded in the original memorandum [1] by a penetrating review of the present situation, and a catalogue of the deficiencies, which deserve widespread attention.

There are of course great difficulties in organising a wholly satisfactory accident service [2,3]. In the ten years since the National Health Service was called upon to coordinate the work of the many different institutions providing medical attention, progress has been made in the care of the injured as of other hospital patients; and the need for further improvement should be seen against the background of what has already been done. It would be a pity if insistence on reform were to destroy public confidence in the existing arrangements; for, even with its unstopped loopholes, the treatment of accidents in this country probably stands comparison with their treatment in any other country. Nevertheless most of us will agree with the British Orthopædic Association that something a good deal better is now possible and necessary. How should it be achieved?

The Association recommends, as a first step towards establishing a nation-wide accident service, that each region should set up a coordinated system in at least one of its areas. In thinking of such a system, there is perhaps a danger that too much emphasis will be placed on its well-equipped and comprehensive centre: for, as the memorandum recognises, the role of the peripheral hospitals will remain important. Limelight on the specialised centres must not cast a shadow over the work done in collecting and screening the casualties on their way. The Association proposes the establishment of accident services as a quasi-military operation, and those with experience of field surgical units or casualty-clearing stations will endorse its decision to vitalise the "forward areas" and "lines of communication". But the task these have to perform has not yet been sufficiently defined. Until we know exactly what is meant by "minor" injury to be treated locally and a "major" injury to be sent to the centre, we cannot have any clear idea of how a comprehensive system will work in practice. The victim himself, or the man who picks him up, cannot be expected to know whether he is "minor" or "major"; indeed, many cases cannot be so distinguished until long after a decision on disposal is necessary. Any plan by which the disposal of accident cases was separated from the disposal of other medical and surgical emergencies might introduce fresh difficulties. As things stand today, decisions on where to send an emergency may be far from easy, and if a distinction has to be made between accident emergencies and others there may be more uncertainty. A case can be made out, in fact, for a review of the arrangements for hospital treatment of *all* emergencies; and the establishment of accident services could provide an opportunity for welcome changes in the structure of the peripheral-hospital system as a whole.

Even where accident hospitals have already been established, much (or even most) of the accident work may still be done elsewhere; and nobody can confidently estimate the magnitude of the proposed shift from one system to another. In one town, with a general hospital and also a well-established and adequate fracture and orthopædic hospital, 60% of cases going to the general hospital's casualty department were accident cases, a quarter of the admissions from the casualty department are accidents, and in some 3% of cases there is room for doubt as to whether the case is an accident or not. The problem of the inebriate with a head injury is a familiar example; but many more subtle distinctions may have to be made before the applicability of an accident service to certain types of emergency can be happily defined. Emergencies in the ear, nose, and throat departments provide important illustrations. Treatment for inhaled foreign bodies may suffer seriously through the patient being sent to the wrong place, or even to the wrong department, "because it was an accident". Where shall we send the person who has taken an overdose of sedatives (a very common emergency), or has been rescued from a gas-filled room, or is bleeding from a varicose vein? For those who like splitting hairs, what about the man with a paraphimosis? The memorandum points out clearly that central accident departments need to be closely associated with comprehensive hospitals; but similarly at the periphery accidents ought not to be inconveniently separated from the day-to-day running of the emergency work, and from the facilities of the special departments. At the periphery, the accident service must work within the framework of the existing hospital service; and, if need be, this framework will have to be modified to suit the accident.

If casualty departments "as they used to be known" are to exist no longer, what is to replace them? LOWDEN [4], in 1956, in a general examination of casualty departments, hoped they might provide

1. From the Association, at 47, Lincoln's Inn Fields, London, W.C.2.
2. *Lancet*, 1957, i, 875.
3. *ibid.* 1959, i, 1278.
4. Lowden, T. G. *ibid.* 1956, i, 955, 1006, 1060.

connecting links between the various hospitals on the periphery, and between these hospitals and the accident centre. CLARKSON [5], while pointing to some of their deficiencies, urged their improvement, and emphasised the good work they can do for the ambulant patient with a minor injury. ELLIS [6] has shown how large a contribution to the material and human welfare of the community can be made by streamlined organisation of the large clinics and detailed care of the individual patient. Every year more than half a million patients attend casualty departments for treatment of acute superficial sepsis—sepsis of the hand in nearly half. Only one in five cases of septic hand can be directly attributed to a known traumatic incident; but all of them, whether "accident" cases or not, present similar clinical problems and require similar treatment. Are they to be inside the organisation of an accident service, or outside it? Such patients, with comparatively trivial conditions, are often unwilling to travel long distances for their treatment, and it looks as though efficient casualty departments, not too far away from people's homes and work, will in fact prove to be an essential part of an accident service. While the needs of major injuries demand first attention, this should not lessen the effort to improve treatment of the minor ones.

Though these may seem to be details, they are important ones which ought to be considered early. Few will dispute the need for much pruning, both of casualty departments and of hospitals which are not in a position to do work of high quality; and in this process some damage to proper pride and local traditions is inevitable. On the other hand, enthusiasm for a clean sweep can be carried too far. Further hard thinking is necessary before accident services can mark out their frontiers, and before a line can be drawn between centralisation and over-centralisation. Bounds that are set in one part of the country may not be suitable for another: the Metropolitan area, for instance, may be a problem in itself. But, if there is a long way to go, we can be all the more grateful to the British Orthopædic Association for taking a firm purposive step in the right direction.

Penetrating a Tumour Virus

THE introduction of electron microscopy aroused great hopes that tumour viruses would at last become visible in isolation and within infected cells; but before long two old problems and a new one were encountered. It had always been impossible to obtain viruses entirely free from host components or to judge the degree of their purification. That biologically active material was associated with, and perhaps inseparable from, host antigen had brought to an impasse lines of investigation that might have been fruitful. For the same reasons efforts to concentrate these viruses often failed. A new problem in visual identification was to distinguish one type of particle, which might be the agent causing a tumour, from another, apparently exactly like it, which might be a mere passenger. At the new orders of resolution and magnification attainable, minute particles of whole or of broken-down cells became visible and required to be distinguished from virus particles of comparable size.

A break through these obstacles is recorded in the report [1] presented to the annual meeting of the British Empire Cancer Campaign on July 9. A high degree of purity has been achieved by M.A. EPSTEIN [2] by homogenising infected chick chorioallantoic membrane with a fluorocarbon (CF_2Cl - CCl_2F, known as Arcton 63) similar to compounds of the same sort used by GESSLER, BENDER, and PARKINSON [3]. These compounds have no greater toxicity than carbon dioxide and do not destroy biological activity. They also free virus from host antigens [4]. The degree of purity attainable was first tested by combined biological and morphological methods using the comparatively large and familiar vaccinia virus as a model. By modifying the fluorocarbon method and combining it with centrifugation, purity was increased until after six or seven successive concentrations at 105,000 G the infectivity of the original mixture and that of a dense white zone in the deposit were comparable in serial dilutions, while infectivity of the supernatant had fallen by 99.9 %. The deposit consisted of a pellet of characteristic shape and structure. Infectivity was associated with a dense white zone, while the rest of it (a transparent jelly) was less infective. A similar pellet was obtained when chick allantois, infected with Rous virus, was treated in the same way and infectivity was similarly distributed [2]. Electron microscope sections from portions of the same pellets as were tested for biological activity were fixed in potassium permanganate by the method of LUFT [5]. They revealed uniform particles of 70-75 μ in the dense white biologically active zone and almost no other formed structures. These particles resembled those seen by GAYLORD [6] and by EPSTEIN [7], and were of the same size as had previously been determined by other methods. The advantages of permanganate fixation over the osmium tetroxide formerly used are that it makes membranes more sharply visible and allows subsequent digestion by enzymes of the fixed structures. The Rous virus particles consist of a double outer limiting membrane, a clear viroplasm, and central electron-dense nucleoid. When virus-containing preparations were incubated with ribonuclease and then examined in the electron microscope these nucleoids were no longer seen. An empty space was often left, separated from the viroplasm by a fine membrane [8]. The method of multiplication of these particles has next to be observed.

Considering past difficulties in purification and future ones in the analysis of virus material, the nature of the associated jelly is of no less consequence. A combination of new fluorescence and light staining reactions and enzyme digestion revealed desoxyribonucleic acid (D.N.A.) and neutral polysaccharide in pellet jelly from material infected with Rous virus or with vaccinia virus. Similar

1. Thirty-sixth annual report of the British Empire Cancer Campaign (11, Grosvenor Crescent, London, S.W.1); p. 126.
2. Epstein, M. A. *Brit. J. Cancer*, 1958, 12, 248.
3. Gessler, A. E., Bender, C.E., Parkinson, M. C. *Trans N.Y. Acad. Sci.* 1956, 18, 701.
4. Hummeler, K., Hamparian, V. *Science* 1957, 125, 547.
5. Luft, J. H. *J. biophys. biochem. Cytol.* 1956, 2, 799.
6. Gaylord, W. H. *Cancer Res.* 1955, 15, 80.
7. Epstein, M. A. *Brit. J. Cancer*, 1957, 11, 268.
8. Epstein, M. A., Holt, S. J. *ibid.* 1958, 12, 363.

5. Clarkson, P. *ibid.* 1956, ii, 31.
6. Ellis, M. *ibid.* 1951, i, 1038.

treatment of pellets obtained from uninfected chorioallantois failed to disclose D.N.A. The authors conclude that the D.N.A. of infected gels is directly connected with cell infection by viruses. Thus in order to study D.N.A. contained by viruses themselves the contaminating D.N.A. of host origin must be excluded, and they suggest how this might be done selectively leaving behind the virus nucleic acid [9].

These structurally and chemically characterised particles have also to be sought in cells of Rous tumours as they occur in the fowl. They require as well to be distinguished from, or identified with, other virus tumour particles that have been described —particularly those in association with mouse mammary tumours. An extensive area of investigation has been opened by the discovery of several separable agents obtainable under specific conditions from certain mouse leukæmias and causing a variety of tumours having conveniently short latent periods. The wealth of materials, methods, and tools now to hand may enable us to decide whether, like other chemical or physical carcinogens, tumour viruses merely initiate the malignant change, and thereafter, as suggested by KIDD [10], become passengers rather than the continuing cause of malignant proliferation.

9. Holt, S. J., Epstein, M. A. *Brit. J. exp. Path.* 1958, **39**, 472.
10. Kidd, J. G. *Bull. Johns Hopk. Hosp.* 1948, **82**, 583.

Annotations

AN ELASTIC SHOESTRING

"DEPEND upon it, Sir, when a man knows he is to be hanged in a fortnight, it concentrates his mind wonderfully." Samuel Johnson's words may partly fit the Medical Research Council, which concentrates its mind wonderfully to fulfil its manifold tasks on a budget of some £3 million a year. But the M.R.C. shows no signs of impending dissolution. Far from it: for, besides concentrating, it expands. The report for 1957-58, lately published [1], tells how in that year it set up a Population Genetics Research Unit (at Oxford), a Microbial Genetics Research Unit (in London), and a group for Research on the Chemical Pathology of Steroids (at Sheffield).

The use of the Council's resources is determined in two main ways: first by requests from Governmental and other bodies for help on specific issues (the report refers, for instance, to studies undertaken, at the wish of the National Coal Board, on tolerance to heat in mines); and secondly by the Council's own initiative, which accounts for by far the greater part of its work. Furthermore, through the Public Health Laboratory Service, it engages in routine, as well as research, activities. Wisely the Council does not allow home needs ot prevent it from looking outwards: it has units in Jamaica, Uganda, and the Gambia; and it is participating in important work on tuberculosis in the Tropics.

In the year covered by the report the net cost of the National Health Service in Britain was £545 million. The M.R.C. (which is financed not through the N.H.S. but mainly by Parliamentary grants—in—aid) is by no means the only body in this country dedicated to medical research; but the amount it received in that year, representing only 0,5 % of the cost of the Health Service, seems hardly a reasonable —and ultimately perhaps not even an economical—allotment.

1. Report of the Medical Research Council for the Year 1957-58. Cmd. 792. H.M. Stationery Office, 1959. Pp. 288. 13s. The section on trends in medical research is to be published separately on Aug. 17 under the title *Current Medical Research* (3s. 6d.)

SYSTOLIC MURMURS

SYSTOLIC murmurs may indicate organic heart-disease or may be the result of abnormal circulatory states, as in anæmia and thyrotoxicosis; and many are found in otherwise healthy persons. In children it is usually a question of whether a systolic murmur means heart-disease or not. Mainzer et al. [1] have recently examined 2035 children in Israel, and found systolic murmurs in 240 (11.8 %), which differs greatly from the 90 % found by Lessof and Brigden [2] in a smaller group in this country, but is not out of line with an earlier series [3] from Israel in which the incidence was only 9 %. In fact systolic murmurs seem relatively uncommon among children in Israel for no very obvious reason. Mainzer and his colleagues were able to regard almost two-thirds of murmurs as innocent; in the remaining third a positive diagnosis of organic heart-disease was made in only 8 cases, and in the others a heart lesion was either suspected or considered probable because of associated electrocardiographic or radiographic abnormalities. An interesting observation is the frequent occurrence of murmurs in more than one member of the same family, amounting to 40 % of the total, and a familial anatomical variation in one or other ventricular outflow tract may account for this. The main conclusion, however, is that there is no characteristic of a systolic murmur itself which guarantees innocence; site, intensity, and constancy or inconstancy all failed to distinguish between organic and innocent murmurs. This finding confirms previous opinions [4-5], and emphasises what Wells [6] has said: "The decision that a systolic murmur is innocent depends not only on the character of the murmur itself, but also on the absence of any evidence of organic disease".

Disappointing though this may seem it is hardly surprising when one considers the configuration of murmurs revealed by the phonocardiogram. Leatham [7] has shown that all systolic murmurs fall into one of two groups, pansystolic murmurs and midsystolic ejection murmurs. Those in the first category begin at the first heart-sound and continue throughout systole: they are regurgitant murmurs due to the backflow of blood either through incompetent atrioventricular valves or through an abnormal communication as in ventricular septal defect. Murmurs of the second variety are characterised by their short duration in midsystole and are caused by forward flow through the aortic or pulmonary valves. Careful auscultation will usually distinguish the two types, but while pansystolic murmurs probably always indicate heart-disease, midsystolic murmurs may be the result of aortic or pulmonary stenosis, high-output states, or may be quite innocent. Thus the recognition of a short midsystolic murmur merely raises the possibility of its innocence, and the final decision depends upon a careful appraisal of other signs, which include palpation of the heart, auscultation of the heart-sounds themselves, particularly the second sound, and the electrocardiographic and radiographic appearances. Most important of all, no restriction should be placed upon any patient's activities unless the diagnosis of heart-disease is assured: in these circumstances it is probably better not to err on the side of caution.

1. Mainzer, W., Pincovici, R., Heymann, G. *Arch. Dis. Child* 1959, **34**, 131.
2. Lessof, M., Brigden, W. *Lancet*, 1957, ii, 673.
3. Szabo, M., Ross, L. *Dupim Refuiim.* 1957, **16**, 134.
4. Messeloff, C.R. *Amer. J. med. Sci.* 1949, **217**, 71.
5. New York Heart Association, 1955. Nomenclature and Criteria for Diagnosis of Diseases of the Heart and Blood Vessels.
6. Wells, B. *Brit. Heart. J.* 1957, **19**, 129.
7. Leatham, *A. Lancet*, 1958, ii, 757.

Special Articles

ACCIDENT SERVICES

Urgent Need for Organisation

"At a time when this country has applied itself earnestly to social problems and to the conquest of disease, it has failed to take proper action to reduce disablement from injury." Believing that the organisation of fracture and accident services is gravely deficient, the British Orthopaedic Association has produced a new memorandum calling urgently for action. Casualties, it says, are diffused too widely among too many small hospitals, few, of which can deal with them satisfactory.

" It is not in the best interests of a severely injured patient that he be conveyed to the nearest hospital, if that hospital is not equipped and staffed to deal properly with his injuries. It is usually far better for him to be taken the extra distance. to a hospital that is prepared for this special work, even though the ambulance may pass other hospitals on the way . Serious delay in the treatment of the injured occurs, not in transit to hospital, but within the hospital that receives the casualties—through poor organisation and inadequate facilities. "

The Association urges H.M. Government to act on the following recommendations :

1. Accident services should be organised on a nation-wide scale to provide adequate accommodation, equipment, and staff for the treatment of all varieties of injury, under the best conditions, at any time of the day or night.

2. The country should be divided into areas, each with its comprehensive accident unit based upon an existing general hospital. This divison should apply to large cities as well as to country districts, and in general having regard to population and distance the size of each area should be such that a twenty-four-hour service can be maintained economically at the hospital selected for the purpose. Often the accident unit could be sited in relation to main trunk roads and industrial concentranumber of small towns, first-aid units should be established in peripheral hospitals. They sould all form part of the accident service with its headquarters at the general hospital designated for this purpose.

3. At hospitals designated as accident centres this staff structure should be overhauled, to ensure full supervision by experienced orthopaedic surgeons, to provide more adequate staff of intermediate grade than is at present available, and to enrol interested general practitioners.

4/ Hospitals not designated as accident centres should be discouraged from receiving injured patients. Patients arriving there under special circumstances should be treated if the injury is a minor one, but all patients with serious injuries should be transferred to the appropriate accident unit as soon as possible.

5. The ambulance services should be adjusted to meet these provisions.

STRUCTURE AND ORGANISATION OF AN ACCIDENT SERVICE

The Accident Unit.

6. The central unit should be a department of a general hospital. The accommodation, for both out patients and for inpatients, should be in one block with its own entrance for ambulances. It should contain all the facilities needed for reception and immediate treatment, including its own X-ray unit, operation theatre or theatres and the necessary ancillary services.

7. The accident unit should be responsible for the *reception* of all injured patients.

8. It should have immediately available every facility for the *resuscitation* of the severely injured.

9. It should provide for the *continued treatment* of all patients with injuries of the locomotor system and of patients with multiple injuries. The continued treatment of patients with other types of injury—such as those of the head, chest, abdomen, or eyes—should become the responsibility of the appropriate specialist department of the hospital.

Accommodation and Staff.

11. There would necessarily be considerable variations according to the nature of the area served. The size of each unit should be such that it is economical to maintain a full tWenty-four-hour service with all its ancillary services. The average requirement is between 150 and 250 accident beds per half-million of the population, assuming that beds for convalescence are also available, especially for the elderly.

12. Since injuries of the locomotor system account for three-quarters of all injuries it is clear that the main responsibility must fall upon orthopaedic surgeon., one of whom should be in administrative charge of the accident service But those in other specialtes are needed to share the burden. The orthopaedic surgeon should confine his responsibility for treatment to injuries of the limbs and spine: the neurosurgeon will deal with injuries of the head, the thoracic surgeon with injuries, of the chest, the abdominal surgeon with visceral injuries, the plastic surgeon with burns, and so on. The closer the collaboration between the various consultants the better. Here it must be emphasised that it is unrealistic to attempt to train surgeons to be expert in every field of surgery—locomotor, abdominal, urogenital, cardiac, thoracic, cerebral—or in injuries of every part. The creation of " casualty surgeons " who accept full responsibility for the treatment of injuries in every of part of the body would therefore be an undesirable development.

13. Upon the character of the junior staffing new thought is required. It will not be possible to rely entirely on the shortterm employment of young men in training for consultant appointments, although these men will continue to fulfil an important function. General practitioners who have a special interest in this kind of work could carry considerable responsibility if their services were properly organised. With general practitioners and junior surgical staff the dominant requirement is integration in a proper team, with unremitting supervision by the consultants and with full facilities for consultation and the exchange of ideas.

Peripheral Hospitals.

14. However efficiently an accident unit may work it cannot of itself provide a solution to the whole problem of accidents. Accidents are unpredictable and urgent and above all ubiquitous. The peripheral hospitals have a vital role, and as much thought should be given to their equipment and staffing as is required for the accident unit. The central unit and the peripheral hospitals together form the accident service.

15. There should be available at all times of day and night—a rota would be necessary—a clinician who experienced in two respects. He must be able to distinguish between the minor injury and the injury that is actually or potentially serious. In the latter case the patient will be sent on to the accident unit when fit to travel : an apparently minor injury, such as a cut in the hand that may involve a tendon sheath, must be recognised and the patient sent, as a matter of urgency, to the accident unit. This clinician must also be competent to deal efficiently with minor injuries—the small superficial burn, the Colles's fracture, the sprained ankle. A surgeon resident in a small town, or a general practitioner, is the right man for this work, provided that his training in accident surgery is adequate. He is as much a part of the accident service as a man in the central unit, and it is the duty of the surgeon in charge of the service to ensure an effective liaison between the unit and its peripheral hospitals and their staffs.

Casualty Departments.

16. Emergency receiving rooms for other than accident cases will still be needed in designated hospitals, but sasualty departments as they used to be known should exist no longer.

Rehabilitation.

17. Continuity of supervision up to the stage of full or greatest possible recovery and until the time of occupational resettlement is essential, and full provision for rehabilitation should be made. It is cardinal, however, that the clinical and functional result depends most on the standard of primary treatment, which is thus the most important single step in rehabilitation.

Teaching in Accident Surgery.

18. It is recommended that the academic boards of medical schools should give greater attention to this aspect of medicine. It has already been indicated that where comprehensive accident services have been established the teaching of medical students has been greatly simplified and improved. The hospitals designated for complete fracture and accident units would almost invariably include every teaching hospital. Even if in these teaching hospitals the allocation of beds to accident cases were necessarily limited by other teaching requirements, there could still be planned an association

with another hospital to which injured patients were transferered within a few days of their primary treatment, still under the same control, and still available for the teaching of undergraduate and postgraduate students.

19. The British Orthopaedic Association supports, and recommends the support of, the Royal Colleges of Surgeons in their insistence on training in accident surgery before candidates sit for the Fellowship examinations. Good training and the provision of efficently organised services will go far to encourage the recruitment of the younger men to work in accident departments; not only does this apply to surgeons, but also to ancillary staff, many of whom avoid this work because of the discouragements that are at present found.

Postgraduate courses, which should include practical instruction, should be available to general practitioners, who should be encouraged to attend them. Here the interest of the College of General Practitioners might well be sought.

The organisation of accident services must be undertaken by the State as a quasi-military operation.

To provide the whole country with integrated accident services on the lines suggested in this memorandum will clearly mean the expenditure of considerable sums of money over many years. Nevertheless a beginning must be made ; and the British Orthopaedic Association recommends that the Government should authorise each regional hospital board, in conjunction with boards of governors of teaching hospitals, to set up forthwith at least one comprehensive accident service within its area. In the fullness of time such units would be multiplied and integrated to form a nation-wide service.

Congresses

PLASTIC SURGERY

THE International Congress of Plastic Surgery was held in London on July 12-17, under the presidency of Mr. RAINSFORD MOWLEM.

Cleft Lip and Palate

Dr. ROBERT H. IVY (U.S.A.) said that both hereditary and environmental factors play a part in the ætiology of cleft lip and palate; and he stressed the necessity for further research to discover and eliminate external causes. Dr. JOACHIM GABKA (Germany) noted that cortisone may be such a cause.

Observations in mice by Dr. LYNDON A. PEER (U.S.A.) have shown that vitamin B_6 and folic acid both reduce the incidence of cortisone-induced cleft palate. These compounds have been given to a few pregnant women, and Dr. Peer's impression is that they may be of clinical value.

Work is being carried out in Liverpool by Mr. R.P. OSBORNE, Mr. D.A. KERNAHAN, and Dr. W.R. BURSTON on embryology and treatment. Mr. Kernahan suggested a new classification for cleft palate, based on the embryology; and he discussed the deformities resulting from failure of growth coordination between the intraorbitonasal septum and maxillæ. The malalignment of the alveolar segments in unilateral and bilateral clefts is corrected before lip repair by means of dental plates. Dr. Burston starts this orthopædic correction when the baby is a few days old. Mr. Osborne said that alveolar collapse was an important factor in producing a poor appearance, and speech and eating defects; such collapse should be corrected from the onset of treatment. Dr. WOLFGANG ROSENTHAL (Germany) proposed a different approach—repairing only the soft palate at the age of 6 months, and leaving the repair of the hard palate until later.

Dr. T.D. FOSTER reviewed the maxillomandibular relationship in normal and cleft cases, showing that some basic growth defect was present in certain types of palatal cleft. Mr. D. GREER WALKER, discussing such maxillomandibular deformities, suggested that the study of dogs should be informative, as different breeds illustrated relative prognathism and retrusion.

Observations by Mr. T.B. BATTERSBY led him to suggest that early repair of the palatal cleft produced growth restriction of the maxillllæ. He concluded that palate repair should be delayed until the age of 5 years.

Dr. FRANCIS BURIAN (Czechoslovakia) put forward a plea for international collaboration in assessing the factors precipitating cleft lip and palate and the results of treatment.

Anæsthesia

Dr. G.E. HALE ENDERBY advocated hypotension in plastic surgery. Operative success was more certain, visibility being improved; and postoperative hæmatoma was less common. In 7000 cases only 2 instances of cerebrovascular accident had been encountered.

Dr. D. MOREL-FATIO (France) enumerated the advantages of local anæsthesia with basal premedication for plastic surgery of the face. Bleeding could be reduced considerably with this method.

Bone Deformities

Corrections of jaw deformities, such as prognathism, mandibular retrusion, and open bite, were described by Dr. KARL SCHUCHARDT (Germany). Intraoral methods were more successful now that sepsis could be controlled and accurate jaw alignment achieved.

Dr. IVO CUPAR (Jugoslavia) advocated internal fixation with stainless steel plates following section of the vertical ramus in the treatment of mandibular prognathism in edentulous jaws.

Dr. ALLAN RAGNELL (Sweden) described his twenty years' experience with autogenous bone grafts building up deformities of the facial sqeleton. He felt that such bone grafts were superior to other materials.

Cancer in the Head and Neck

Dr. C.L. KIEHN (U.S.A.) recommended in cases of cancer wide block excision with immediate reconstruction. Dr. W.B. MACOMBER (U.S.A.) described the treatment of cancer of the eyelids by ablation followed by reconstruction, by means of a tarsal pedicle and a full-thickness skin graft.

Dr. E.V. GIBSON (Australia) suggested that in basal-cell carcinomas definitive reconstruction should often be delayed until recurrence was unlikely, temporary repair being achieved by split-skin grafts. Dr. HELENE JANVIER (France) agreed that the temporary use of a free skin graft aided early recognition of recurrence.

In cases of cancer arising in burn scars, Dr. R.F.E. MOULY (France) advised primary excision and skin graft.

Transplantation of Teeth

Dr. S.W. LESLIE (Canada) described cases of transplantation of teeth; a tooth had been successfully transferred from a girl to her brother.

The Injured Hand

Dr. C.C. SNYDER (U.S.A.) discussed electrical burns of the hand. He advocated nerve pedicle grafts for loss of more than 8 cm. of nerve; free grafts were useful for shorter lengths.

Dr. J.W. LITTLER (U.S.A.) described methods of transposing sensitive skin from less essential areas of the fingers, to restore sensitivity to the pulp aspect of the thumb.

Transplation of autogenous bones and joints was recommended by Dr. M.A. ENTIN (Canada) as a salvaging procedure in the severely injured hand.

Dr. J.F. ELY (Brazil), discussing skin restoration in digital injuries, emphasised the importance of early cover.

Mr. S.H. HARRISON discussed the divided flexor profundus tendon, and described repair by tendon grating with retention of half the flexor sublimis tendon. Primary repair of the divided flexor profundus tendon in cutlass injuries was advocated by Dr. E.L.S. ROBERTSON (British West Indies).

In reconstruction of the thumb Dr. V. KARFIK (Czechoslovakia) uses a V-shaped cartilage graft from the 8th and 9th ribs, one stem being fixed to the metacarpal bone of the index finger.

Dr. ORLOV (U.S.S.R.) described local anæsthesia in the hand by injection of 30-60 ml. of 0.25-0.5% novocaïne into the heads of the radius and ulna; tourniquet is applied to the upper arm.

Skull Defects

Dr. J.J. LONGACRE (U.S.A.) described the use of split rib grafts to restore defects of the calvarium. Others advocated tantulum plates (Dr. E.C. Hinds [U.S.A.], vitallium plates (Dr. I. Clerici-Bagozzi [Italy]), and polyethylene and polyvinylchloride plastic compounds (Dr. E.V. Gruzdkova [U.S.S.R.]).

Construction of Pinna

Techniques for constructing the pinna where this is congenitally absent were described by Mr. A.J. EVANS

(U.K.), Mr. D.N. MATTHEWS (U.K.), and Dr. R.C. TANZER (U.S.A.). Each prefers to operate when the child is 4 years old. A scaffold of autogenous rib cartilage gives a good result, but there is a tendency for absorption. Plastic substitutes avert this, but a foreign-body reaction may ensue.

Experimental Methods

Dr. B.O. ROGERS (U.S.A.) paid tribute to the previous work of Medawar, and he then described his own experiences with skin homografts in rats. Survival is longest when the grandmother, mother, or a sibling is the donor.

Dr. H. MARINO (Argentina) has found that rat homografts survive longest when treated with human placental extract.

Dr. H. BAXTER (Canada) described the use of human fœtal-tissue homografts.

Mr. T. GIBSON (U.K.) and Dr. R.K SNYDERMAN (U.S.A.) discussed tissue banks. Cartilage survives for forty-eight hours after somatic death, and can be kept alive for three weeks.

Dr. K. OSTROWSKI (Poland) said that when transplanted transitional epithelium gives rise to osteogenesis, connective tissue plays a part.

Dr. S.D. GORDON (Canada) has had four successes using dermal tubes to replace defects in arteries in dogs.

Dialogues of Today

PSYCHOPATHS OR PATHOPSYCHS ?

SOCRATES : I hear much talk today of psychopaths. Tell me, Analyticus, what a psychopath is.

ANALYTICUS : A psychopath, Socrates, is a person whose mental disorder takes the form of behaviour which leads to his becoming a social problem, either because he lacks the stability necessary to keep in steady employment and care for his family, if he has one; or because he commits offences against the property or persons of others. In other words the psychopath lacks social sense, and social conscience, as result of which he is not deterred from his antisocial conduct either by appeals to his better nature or by punishment.

SOCRATES : What causes such a disorder of mind ?

ANALYTICUS : Views differ about this, and indeed the causes probably differ too. Sometimes disease of the brain leads to just these changes in the personality. — Many psychopaths, however, show no sign that they have any brain disease, and it is supposed by some psychiatrists that in early childhood they were not given the love and affection which children need if they are to become stable members of society.

ERYXIMACHUS : It seems to me, Socrates, that Analyticus has forgotten his logic. What he is really saying is that because mental disorder may lead to a certain kind of antisocial conduct the same kind of irresponsibility must be put down to mental disorder. I believe that most psychopaths are just criminals, and that those who call them psychopaths are merely bad psychologists, or pathopsychs.

ANALYTICUS : No doubt some psychopaths commit crimes, and are therefore criminals ; but surely Eryximachus is himself illogical in classing all criminals together. Many ordinary people commit crimes because a single temptation overcomes them, but they are not what we mean by psychopaths.

SOCRATES : Do you suggest, then, Analyticus, that if a psychopath commits a crime he should be dealt with differently from an ordinary criminal?

ANALYTICUS : Certainly, for if his crime is the result of his mental disorder it is unfair that he should be punished as if he were fully responsible for it.

SOCRATES : What, then, would you do with him?

ANALYTICUS : I would compel him to have treatment.

SOCRATES : And supposing the treatment failed to change his character ?

ANALYTICUS : That would depend upon the nature of his behaviour disorder; but if he were a danger to others or in some way offensive in his behaviour, I would detain him, if necessary against his will, as I would a patient suffering from any other form of mental disorder involving similar risks.

SOCRATES : What do you as a lawyer think about this, Apollodorus ?

APOLLODORUS : The law is clear enough, Socrates. If an offender doesn't know the nature or quality of his act, or, knowing that, doesn't know that it is wrong, he may plead this in his defence and be found guilty but insane. And now he may also plead diminished responsibility in mitigation. It seems to me that if Analyticus is right these provisions exactly meet the case of the psychopath. And if the psychopath is found guilty and sent to prison, arrangements can be made for the prison authorities to deal with him as such. But I do foresee one difficulty for Analyticus. At present if a man pleads that he is irresponsible on account of his mental disorder the court will require some evidence of his mental disorder apart from his crime; but, if I understand him aright, Analyticus is maintaining that the crime is evidence of the mental disorder which is to be pleaded in mitigation of the crime. Or if that is not the case, he is depending upon a psychological refinement which may go over the heads of ordinary people like a judge and jury.

ANALYTICUS : I needn't bother with that argument, Socrates, for Apollodorus' proposal wouldn't work on other grounds. A defendant will only plead mental irresponsibility if he thinks that the alternative is worse. Indefinite incarceration in a mental hospital is better than being hanged, but it is not more attractive than a few months or even a year or two in prison, which would be the usual alternative in such cases. What we need is power to deal with psychopaths against their will. They are much too wily to be caught by Apollodorus. And as for Eryximachus, it is he and not I who is naive. Repeated prison sentences help neither the psychopath nor society.

APOLLODORUS : Well, if a judge sends me to prison I do usually know when I shall get out, but if I were sentenced to be treated by Analyticus I should appeal on the ground of undue severity. Do we know enough about psychopaths to shut them up for indefinite treatment? And if they're to be shut up as nuisances, I think society has to learn to put up with some nuisances, or who knows that his may not be the next turn ?

"... This very standard of living which we are so proud of, and which seems to be the goal of all nations in the world, is having the same effect upon the community as a plaster cast has on muscles of the body. There is considerable evidence that Canadians are forfeiting the physical, mental, and social pleasures which may be obtained from participation in physical exercise and sports."

"It is estimated that 34 per cent, of the male population of military age are unfit for military service, in which case the prospects are not very good if an emergency should occur. The lawless and the listless are equal menaces to society. I expect you to give a lead in this matter by making a whole-hearted effort to reverse the trend of the statistics, which at present only show more beds, more mental cases, and more unfitness in children and adults." The Duke of EDINBURGH in a presidential address on June 30 to the Canadian Medical Association, reported in *The Times* of July 1.

Letters to the Editor

QUEEN MARY'S AND THE FOUNTAIN

SIR,—When the lay press published news of the happy solution reached by the Minister of Health regarding the future of Queen Mary's Hospital for Children and the Fountain Hospital there was a claim that the new hospital would be the first of its kind in this country to accommodate both physically ill and mentally handicapped children on one site. Now that the same statement has appeared in your annotation of July 11 it is perhaps only right to point out that Olive Mount Children's Hospital, Liverpool, adopted this plan in December, 1955, and there may be others scattered about the country. Those of us who are working in a hospital of this type are convinced that it has advantages not to be found is a hospital limited to physically ill children; and the experiment is being watched with interest by the Liverpool Regional Hospital Board.

It is gratifying to know that a hospital of Queen Mary's eminence, size, and influence is now to give the scheme a thorough trial, the results of which may well have far—reaching effects upon planning the children's hospitals of the future.

Liverpool. NORMAN B. CAPON.

SIR,—Your annotation of July 11 mentions the urgency of the need for a new building for the Fountain Hospital. What is not mentioned is the extreme vagueness of the present proposal for the future of the hospital. The suggested transfer of some 120 children from the Fountain to Queen Mary's would in no way solve the problem of the Fountain's future, since the waiting-list alone totals 158. It is understood that it is the opinion of the staff of Queen Mary's Hospital that no more than 120 children from the Fountain could or should be accomodated there. There has been a suggestion from the Minister that some of the children from the Fountain might be dispersed to other regions. Even if this were desirable it seems impracticable since attempts to remove over-age patients to other Metropolitan regions have been unavailing over many years. In fact Tooting is probably more accessible to Inner London parents than any accomodation that could be offered in other regions.

The fact remains that no decision has been taken on the future of the Fountain Hospital or of the 600 children which it houses. The suggestion that a 100-bed research and teaching unit should be built in Tooting is also no solution. The value of the contribution to research and teaching made from this hospital lies precisely in the immediate accessibility of the large group of children and in the fact that both research and teaching are practical rather than purely academic. Isolation of teaching and research from the bulk of the patients would be detrimental to both.

In practice the Minister's proposals provide for only 220 of the 750 children for which the hospital is responsible, including those on the waiting-list. There is no mention of what is to happen to the remainder or what use is to be made of the present site. There is a national shortage of beds for severe mentally handicapped children and any new arrangements should increase and not decrease the number of these beds. A new hospital in Tooting with 600 beds as originally suggested, linked for research, teaching, and clinical purposes, with the new unit at Queen Mary's, would help to solve the bed shortage. This would provide a permanent basis for the present team of workers interested in mental retardation and could develop into a national centre for the study of this important branch of psychiatry.

Fountain Hospital, London, S.W.17. BRIAN H. KIRMAN.

SIR,—The new plan of the Ministry of Health for Queen Mary's Hospital, Carshalton, under which it will remain a general children's hospital but will also admit mentally handicapped children will be widely welcomed.

Contrary to your statement of July 11, this will not be a new venture for this country. For over three years, Olive Mount Children's Hospital, Liverpool (which with Alder Hey Children's Hospital and the Royal Liverpool Babies' Hospital forms a hospital group of 1000 beds administered by the Liverpool Region Children's Hospital Management Committee) has provided accommodation for some 200 children with general pædiatric disorders and for 60 mentally handicapped children. The day-to-day care of all the children is the responsibility of the same medical and nursing staffs.

Alder Hey Children's Hospital, Liverpool, 12. R. McL. TODD.

MAJOR ACCIDENTS

SIR,—Your definition of this heading (June 27) is an interesting one : "casualties too numerous to be treated properly by any one hospital". If the word "properly" is given its correct definition, then a great many hospitals in the country are being confronted with this situation almost daily. In numbers and severity a great many "major accidents" occur each day, and when we are satisfied that the standard of their treatment is what it should be, then we need have no fear of coping with single major accidents with many injured.

Until we have all areas of the country covered by an efficient Accident Service organisation, no confidence should be placed in the "paper" plans to deal with major accidents.

The Radcliffe Infirmary, Oxford. J. C. SCOTT.

PENICILLIN IN LEPTOSPIROSIS

SIR,—Leptospirosis has been a common disease in military hospitals in Malaya, and its treatment has been the subject of conflicting reports. Fairburn and Semple [1] concluded that penicillin and chloramphenicol play no useful part, but Clein [2] obtained good results with penicillin. Mackay-Dick and Robinson [3] treated 84 cases with penicillin, and all responded favourably. There were no sequelae and no relapses.

Having observed the later part of their-work, I treated a further 62 cases, and, with Capt. B. H. Knight, have reviewed 86 cases treated by other medical officers. All were given 600,000 units pencillin 4-hourly for 24 hours, followed by the same dose 6-hourly for 4 - 6 days. The pattern of response described by Mackay-Dick and Robinson [3] is uniform, and sufficiently reliable to be used as a diagnostic test over the first 24 hours. The severity of the "penicillin leptospiral reaction" occasionally causes anxiety, and the management of this remains a matter of opinion [4-5].

The regime described by Mackay-Dick and Robinson [5], with slight modifications, has now become the standard treatment for leptospirosis in military hospitals in Malaya. Penicillin is found to be consistently and speedily effective regardless of the leptospiral strains involved.

Other antibiotics are rarely used because of the general satisfaction with penicillin. Occasionally sensitivity to penicillin, or some other reason, however, has made alternative treatment necessary. From a very small number of cases, it is my impression that the effect of chloramphenicol is comparable to that of penicillin, while oxytetracycline is less dramatically beneficial. (Large doses of both were used; 3-4 g. initially, followed by 0.5 g. 4-hourly.)

Cambridge Military Hospital, Aldershot. A.T. COOK.

1. Fairburn, A. C., Semple, S. J. G. *Lancet*, 1956, i, 13.
2. Clein, L. *ibid.* 1956, i, 289.
3. Mackay-Dick, J., Robinson, J. F. *J. R. Army med. Cps.* 1957, **103**, 186.
4. Russell, R. W. R. *Lancet*, 1958, ii, 1143.
5. Mackay-Dick, J., Robinson, J. F. *ibid.* 1959, i, 100.

In England Now

A Running Commentary by Peripatetic Correspondents.

My monograph on the ethnology of the handshake reports many interesting facts for the first time.

The Scandinavians have the highest frequency. In Scandinavia any separation, however brief, must end with a handshake, so that if one of the company leaves the room for a few minutes it is likely that he will need to shake hands with everyone on his return. Whether a Scandinavian husband and wife shake hands before going to sleep and again on awakening I have not yet discovered. The British are at the other extreme. British colleagues never shake hands. It has not been calculated how long a separation would be necessary to stimulate them to do so without embarrassment to themselves and the onlookers. Probably it would have to be so long that they had ceased to recognise each other[1]. If a doctor has been in America for a year, conditioned by the higher frequency of handshaking there, he may on meeting a colleague for the first time after his return show a tendency to shake hands, indicated by slight flexion of the right elbow, but eliciting no response and therefore failing to be reinforced, the movement will die away (positive inhibition of biceps) and nothing will come of it.

The frequency of handshaking at an international congress will approximate to that of the country of maximal frequency taking part (Fingerbeugen's law). Naturally on meeting for the first time in the day everyone will shake hands, and also on separating for lunch. The lunch interval acts as a strong stimulus, and during the tea break there will be further sporadic handshaking, partly by members who have missed the opportunity after lunch and partly by those naturally highly charged who by this time are ready to discharge again and arouse partners who are naturally more inert. (Die Handesschuttenexplosiven of Griefenhagen). This atmosphere wears down the normal inhibitions of participants to such an extent that Britishers who are meeting after an interval of no more than a year have been known to shake hands on such occasions. At the customary social function in the evenng everyone will shake hands again on arrival ad departure.

There is one advantage in the Scandinavian system. The Britisher in spite of his high threshold sometimes wonders whether he ought to shake hands or not, and if you work it out every meeting of two Britishers involves four possibilities including two disagreements. It is really much simpler to shake hands on every possible occasion.

* * *

While I was in Bavaria this winter I avoided skiing as a sport too dangerous for an aged registrar. Soon after my return I started to write my M.D. thesis, only to realise that this was an even more hazardous form of exercise. Half of the references are 12 ft. above ground level, and many old *Lancets* are at the dizzy height of 14 ft. I refuse to stand on the top of a ladder to reach a *Journal of the American Medical Association* of 1916, and if I hope to obtain my M.D. it will have to be without the help of some very high level French literature. Skiing will be nothing after this, and I am considering a course on mountaineering as training for the PH.D.

* * *

OLD BONES

Tell me not, hospital, I am unkind
That from the nunnery of they chaste wards
And order'd hours I fly;
In the alarms of daily life I find
Much turbulence, but much that me accords
Of comfort, warmth, and charity.
All life's but a route to dying; still—
If there be roads the sun doth touch
May I not tread them till it set
Fear not I'd seek too late thy skill
For, though I love not Medicine overmuch,
I find the Shades more baneful yet.

* * *

From the doctor's postbag: "I'm glad to tell you the gastic has left me, but today one of my awful heads has come back."

1. Uncles, J. R., Cousins, A. B. (1957). On the extinction of mutual recognition between ants. *The Antiquarian*, **19**, 537.

Parliament

Leadership in the National Health Service

On July 15 the Opposition chose to spend one of its Supply Days discussing the National Health Service, and Dr. Edith Summerskill opened the debate by asking the Minister of Health for news of the Hinchliffe report on prescribing, the Cranbrook report on the maternity services, and the Younghusband report on social workers. The recommendations of all three were of social significance and would affect the lives of a great many people and she thought that the House before it rose should be informed of the progress of the discussions on them.

Mr. Derek Walker-Smith saw the main objectives of the health service as the development of preventive measures and of community care, the modernisation of our hospitals, the recruitment and training of staff, and the improvement of their career prospects. Of the more detailed objectives proposed in the three reports, the Hinchliffe suggestion of a voluntary scheme for the limitation of the amount of drugs supplied was already (with other recommendations) being discussed with the British Medical Association. The Government regarded the suggestion as a constructive approach and, should such a scheme prove successful in controlling expenditure on drugs, they would consider at the end of an experimental two-year period whether the saving justified the abolition of the prescription charges. On another venerable prescribing issue—free medicine for private patients—Mr. Walker-Smith said that he had met representatives of the B.M.A. at their request. Naturally he would consider all they had said but he assured the House that he had not given them any promise in the matter.

Turning to the Cranbrook report, he said that he was hoping by the end of July to issue memoranda commending to hospital and local authorities many of the recommendations. Others, including those on the maternity services provided by general practitioners, must necessarily be reserved for further discussion with the medical profession. The Younghusband report had been published only two months ago, but he had already sought the views of the local authority associations. He had not yet received their replies, but there was some evidence that the report had had a favourable reception.

Mr. Kenneth Robinson, considered that doctors had perhaps been given an overgenerous share in the management and detailed policy-making of what was after all a public service. He felt that outside the clinical field the medical view should not automatically prevail. Sir Malcom Stoddart-Scott suggested that we were getting near the time when whe should have to spend not just £25 million a year but hundreds of millions on building hospitals. Dr. Dickson Mabon was one of those who were uneasy about waiting-lists and he asked for a national survey. Sir Keith Joseph asked if all the activities which affect the citizen most directly—local-authority preventive services, hospital services, medical services, and housing—could not be brought under one political control. Research and experiment in the social services, he suggested, might be undertaken by an independent body supported partly by subscriptions from corporate bodies and partly by Government grant. Several other people urged the development of our industrial health services.

Members clearly accepted the N.H.S. as a national institution which they were impatient to see expand. As Mr. A. Blenkinsop put it, "the need today is for a Minister with real energy, who is prepared to challenge the Treasury and the country, and to reveal the great opportunities which lie before us in our National Health Service".

Courses in Psychological Medicine for General Practitioners

The Minister of Health said that last year 2178 general practitioners (about 10 %) attended postgraduate courses. It was an increasing trend. The courses included training in psychological medicine. Mr. Kenneth Robinson asked the Minister whether the seminars held in the Tavistock Clinic, which were almost the only practical training offered in psychological medicine, could not be recognised by the British Postgraduate Medical Federation, so that doctors attending them could claim help with their expenses. The Minister agreed to look into the point but added that his jurisdiction over education and training was limited.

Obituary

VLADIMIR KORENCHEVSKY
M.D. Moscow

Dr. Korenchevsky, who died on July 9 at the age of 79, will be remembered in this country for his work for gerontology at the Lister Institute and later as director of the Oxford gerontological unit.

Born at Lida in Russia, he qualified in 1903. During the Russo-Japanese war from 1904 to 1907 he was head of a bacteriological laboratory in Manchuria. Later he worked with Mechnikoff in Paris and with Pavlov in St. Petersburg, and in 1911 he was appointed professor of experimental pathology in the Russian Imperial Military Medical Academy. In 1919 he was appointed professor of experimental pathology in the Russian Imperial Military Medical Academy. In 1919 he escaped to the White Army, fighting in South Russia, and afterwards he became a British subject. He worked at the Lister Institute from 1929 till in 1945 he set up the Oxford gerontological unit, which was largely supported by Nuffield grants. In 1952, when the unit was transferred from Oxford to the department of physiology at St. Bartholomew's Hospital, Dr. Korenchevsky retired from the directorship. But he continued his studies and he summarised his findings and opinions in a book *Physiological and Pathological Ageing* finished shortly before his death. He was a moving spirit in the formation of societies for research on ageing and one of the organisers of the first international gerontological conference.

A.C. writes:

"Korenchevsky's monument is the existence of a body of scientific gerontology in Britain and America. He was a character, an indefatigable and, for much of his time practically singlehanded experimentalist, a formidable organiser, and above all an enthusiast in the best sense. Pavlov, he once said, had taught him 'Think about your work when you get out of bed, think about it at breakfast and all the way to the laboratory, think about it on the way home, and say your prayers to it a night'. Chairmen of grants committees, heads of departments, or individual researchers who did not want to hear about the importance of gerontology would leave by rear entrances when they saw Korenchevsky coming. It is only now that he is gone that one realises how much he did to restore the scientific credit of research on age studies—by private propaganda, by his own work (which was old-fashioned, perhaps, in these days of information theory and somatic aneuploidy, but always critical), by his persistence, and by his ambition to achieve recognition, not for himself, but for his subject. To this end he would exploit every asset he had, even his nuisance value to the apathetic. In the end he achieved it. At most recent scientific conferences on gerontology, he was there, tall and white-haired, the film director's image of the émigré count or the distinguished scientist, ready to intervene in the debate or to shake his head sadly when a physicist or a mathematician defeated old age in three straight sets. Sometimes one came to think that he had secretly defeated it himself, and it is sad that we shall see him there no more."

KENNETH REGINALD STOKES
M. R. C. S.

Dr. Stokes, medical director of Harefield Hospital, Middlesex, died on July 9.

"For thirty years", write T.H.S., "Kenneth Stokes has been identified with the administration of an institution that became a modern sanatorium, then developed into a vast E.M.S. hospital, and finally evolved into the active chest hospital which has been the training home of so many physicians and surgeons from the Commonwealth. As a physician he was at his best in the care and control of sick nurses to whom he restored not only health but confidence and the ability to lead a normal life. As an administrator he was supreme at coordinating and maintaining harmony in the complexities of a large hospital. Members of St. Mary's staff who worked at Harefield during the late war will bear witness to the help that he gave, and to the respect and affection with which he was regarded.

"Outside a busy professional life he was acutely interested in the history and antiquities of the neighbourhood and he spent many happy hours as a prominent member of the local cricket team. In his leisure hours nothing delighted him (and his audience) so much as a metaphysical debate in which his give-and-take had an almost Johnsonion character. In this age of stress and rush the loss of a man who transmitted so much good will and tranquillity is to be regretted."

GRACE M. SICKLES

Miss Grace M. Sickles, an associate research scientist in the Division of Laboratories and Research of the New York State Department of Health, died on June 29. In 1947, with Dr. Gilbert Dalldorf, she identified the Coxsackie virus during a study of outbreaks of poliomyelitis in New York State. It was named from the village in which the first two recognised human infections occurred. Earlier Miss Sickles had taken part with Dr. Augustus B. Wadsworth in an extensive series of investigations on the production and standardisation of antipneumococcus, antimeningococcus, and antistreptococcus sera, and on the action of immune serum in conjunction with chemotherapy in experimental streptococcus infections.

Medicine and the Law

Claim for Privilege Upheld

The case at Bristol assizes (Patch *v.* The United Bristol Hospitals) in which a patient, who had contracted gas-gangrene after an operation, lost a claim for damages[1], raised the issue of a hospital's right to claim privilege from production for written statements made, according to the procedure recommended by the Ministry of Health[2], by members of the staff after an untoward incident which might give rise to litigation. At the Bristol hospital the consulting surgeon, senior registrar, house-surgeon, and nurses had made written statements within 2-10 days of the development of the gas-gangrene infection which were sent at once to the solicitors of the hospital. It was argued for the plaintiff that, as they were made before he had put forward any claim, it could not be said that they had come into existence "solely or mainly" to enable the solicitors to advise the Board of Governors. The Board's solicitor rested his claim for privilege on Seabrook *v.* British Transport Commission, when it had been held that the reports of a conductor driver and/or inspector immediatly after a traffic accident were privileged.

In ruling that the hospital's claim for privilege should be upheld Mr. Justice Streatfield said:

"Where in such a case as the present a substantial onus is on the Hospital Authority, it seems to me that, when something goes wrong in medical or surgical treatment which reasonably gives rise to anticipated legislation, any statement which is then made by persons concerned with the patient in anticipation of that kind of claim which may or may not be made made is quite clearly privileged. It is not a document which was made in the ordinary course of treatment, but it is made simply because something unfortunately has gone wrong; and in order to provide the legal advisers of the Hospital Authority with the necessary material to advise if such a claim should be made, these documents come into existence. I should have thought these documents were even more privileged than thy were in the case of Seabrook v British Transport Commission. Accordingly I rule that this claim for privilege must be upheld."

Public Health

MINES AND QUARRIES

In his latest annual report[3] the chief inspector of mines and quarries records a further decrease in certifications of pneumoconiosis; but the report acknowledges the fallibility of these data as a guide to incidence of the disease. The plan for five-yearly X-rays of coalworkers was put into operation in 1958, and this will affect the trend in certifications for at least one cycle. Dust control, based on atmospheric measurements, continues to reduce the number of areas not reaching the "approved" standard, and the report states that in some working positions conditions better than this standard can and should be reached. Comparatively little information is given on the dust risks in quarry-working.

In 1958 the accident-rate in the mines was not substantially different from that in 1957, and in some instances it was higher. The report describes many instances where care by manager or workmen would have prevented accidents, particularly those involving explosives. The need for foresight by manager and men is even more obvious in the account of accidents in quarries.

1. See *Lancet*, July 11, 1959, p. 35.
2. H.M. (55) 66.
3. Report of H.M. Chief Inspector of Mines and Quarries for 1958. H.M. Stationery Office, 1959. Pp. 62. 3s. 6d.

Notes and News

A COLLEGE CONFERENCE

The Royal College of Physicians of London have chosen Pathogenesis and Treatment of Occlusive Arterial Disease as the subject of their next conference, which is to be held on Nov. 13 and 14. Sir Robert Platt, the president, will take the chair at the first session, on the pathogenesis of occlusive arterial disease, when the speakers will include Prof. J. H. Dible, Prof. C. V. Harrison, Sir Howard Florey, Dr. G. J. Popjak, Dr. J. C. F. Poole, and Prof. G. Payling Wright. Dr. J. St.C. Elkington will be in the chair in the afternoon, when Dr. E. C. Hutchinson, Prof. J. W. D. Bull, Mr. Wylie McKissock, Prof. C. G. Rob, Dr. D. A. Shaw, and Dr. John Marshall will discuss cerebral vascular disease. On Saturday, the 14th, Dr. D. Evan Bedford will be the morning chairman at a session on coronary-artery disease at which the speakers will be Dr. J. N. Morris, Dr. M. F. Oliver, Dr. Aubrey Leatham, Prof. R. S. Pilcher, Dr. A. Rae Gilchrist, and Dr. Rosemary Biggs. Prof. John McMichael will open the discussion. In the afternoon Sir George Pickering will preside over a session on peripheral vascular disease to which Dr. Lawson McDonald, Prof. Henry Barcroft, Dr. W. G. Oakley, Dr. J. F. Goodwin and Prof. J. B. Kinmonth will contribute.

Like the earlier college conferences the meeting is primarily arranged for fellows and members who are consultants in medicine or pathology. Numbers may have to be limited and early application should be made to the registrar at the college, Pall Mall East, S.W.1. The entrance fee of 5 guineas (which includes lunches and dinner) should accompany the application.

AN ANGLO-ITALIAN JOURNAL

The 50th anniversary of *Minerva Medica* is being marked by the publication of the first issue of a monthly English review of Italian medicine. The new *Panminerva Medica*, which is sponsored by the Italian Medical Association, will include translations of original articles (or abstracts of articles) from the 40 journals of the *Minerva Medica* editorial group. The annual subscription is £3 10s., and further particulars can be had from Edizioni Minerva Medica, Corso Bramante 83-85, Torino, Italy.

University of London

The title of professor emeritus has been conferred on Prof. R.J.S. McDowall, on his retirement from the Halliburton chair of physiology at King's College, on Prof. F.C. Ormerod, on his retirement from the chair of laryngology and otology at the Institute of Laryngology and Otology, on Prof. J.H. Woodger, on his retirement from the professorship of biology at the Middlesex Hospital Medical School, and on Prof. H.R.B. Fenn, on his retirement from the chair of dental prosthetics at Guy's Hospital Medical School.

University of Liverpool

At recent examinations the following were successful:

M.D.—D. Annis, Winifred J. A. Francis, F. D. Kitchin, B. W. McGuinness, G. W. Pennington, H. Wilson.

Ch.M.—Frances Selsnick.

D.M.R.D.—M. A. Bloomfield, A. Dutt, N. Geffen, P. P. Keith, M. I. M. Nilar, R. A. Owen, H. P. Tulloh.

D.M.R.T.—A. Kumar, B. N. Roy.

D.P.H.—A. Afnan, J. A. Black, Jean O.B. Carmichael, Irene L. Chesham, Irene M. J. Cox, J. S. Doyle, G. P. Evans, Madge Farmer, A. J. Graham, J. R. Jones, J. Keane, W. Manwell, S. R. W. Moore, D. R. Morris, June Nelson, J. O'Gorman, Gladys I. Wilson, H. E. Wilson, Margaret T. Wood.

University of Durham

On July 4 and 5 the following degrees and diplomas were conferred:

M.D.—Millicent Payne, B. O. K. Schade, C. G. Tulloh, J. H. Walker, *Dennis Whitehouse.

M.B., B.S.—W. J. Atkinson, Herman Anker, Shirley M. Arthur, J. M. Barker, D. W. Bethune, Lily Burn, Hazel Butler, Hubert Campbell, Ian Capstick, A. M. Carr, *C. D. Caplan, *A. Sai-Yee Chao, D. W. hapman, Mary E. Cheshire, John Croudace, Ann M. Crump, E. C. Davies, P. M. J. J. Dee, *I. A. Drysdale, D. W. Forster, Lorna A. Gregory, Judith M. Heron, W. A. Hewitson, *Margaret K. Huddart, F. A. Ive, Mohammed Ali Izadi, P. A. Johnson, L. J. Kinlen, J. R. Kirkpatrick, Nii-Osa Kwao, C. J. N. Lawson, I. G. Lloyd, J. M. McLean, T. R. Martin, Cedric Maunder, I. A. Miller, R. A. Moffett, T. E. Nelson, *Olatokunbo Basti Onibuje, J. Kwaku Owusu-Ansah, D. T. Pearson, Elisabeth V. Rafique, Thomas Reynolds, T. J. Richards, A. M. Robson, G. D. Shapero, W. Y. Sinclair, Margaret Slater, Stephen Steel, Sheila Stein, Frances E. Thompson, *Kishor Varde, J. B. Wade, Colin Waine, J. R. Waring, Fenwick Wills, Anne H. Young.

D.P.M.—Pritam Lal Kalra, Peter Morgan.

* in absentia

University of Glasgow

On June 17, Lord Boyd-Orr, as chancellor, handed to Sir Hector Hetherington, the principal, a cheque for £450 which has been subscribed to found a Graham Kerr prize. This will be awarded annually to one or more final-year honours students in zoology.

On July 4 the following degrees were conferred:

M.D.—W. M. Borthwick, W. A. J. Crane, and A. N. Smith (with honours); M. K. Browne, John Macvicar, Goldwyn Slare, and T. S. Scott (with commendation); S. D. S. Park.

Ch.M.—H. L. Duthie (with honours).

Ph.D.—T. A. H. Pasieczny.

University of Aberdeen

On July 10 the honorary degree of LL.D. was conferred on Prof. E. W. H. Cruickshank and Prof. Michael Polanyi.

On July 9 and 10 the following degrees were conferred:

M.D.—I. A. Cook (with honours); I. Mc.I. Duguid, J.S. Finnie, R. R. Mowatt, I. G. Thomson.

M.B., Ch.B.—W. D. Mackay (with honours); W. B. Greig, Anne Lundsgaard, A. S. Markenzie, R. A. Yuill (with commendation); T. K. Agble, I. W. W. Anderson, E. B. Asiedu, Rita M. Baillie, Gabrielle A. M. Baird, Sylvia T. Ballard, Alison F. H. Birnie, A. J. Buchan, Betsy M. A. A. Cavallo, J. H. Chinnock, G. I. Cohen, Joan M. R. Colt, C. McK. Corser, H. R. rofts, A. I. Davidson, A. M. Duthie, J. A. Duthie, A. J. D. Farquharson, Deji Femi-Pearse, J. A. M. Findlay, Glenn Foubister, W. C. Gordon, Elizabeth S. Harper, J. L. Hay, A. S. Henderson, J. W. Hunter, Anne Lejeune, Donald Lipp, Elizabeth Luke, William Macdonald, I. A. Macfarquhar, D. R. Mackay, Harry McPherson, Iain Mathewson, Audrey M. Morgan, G. D. Morrice, W. J. Morrison, Leonora J. H. Murray, R. M. Preshaw, Winifred Proudfoot, John Reid, C. M. T. Robb, D. A. Robertson, J. G. Robertson, J. W. Robertson, George Russell, E. L. Smith, Anne E. Staddon, Joan Stephenson, G. M. Stewart, Beryl M. Stone, A. B. Thain, Irene A. Watson, David Wiseman, Audrey W. Young.

Royal College of Physicians of Ireland

On July 3 the following were admitted to the licentiateship of the college:

Adrienne M. Grahame-Ballin, P. J. Breen, S. M. Bridburg, Deirdre M. Burns, J. F. Butler, Perry Caplan, M. H. Compion, Osman Oktay Dervish, Bozena H. M. Docherty, D. J. G. Docherty, Joseph Fernando, D. E. Fitzgerald, Carmin H. Grange, E. E. Gulland, Ezekiel Iyobu Simon-Hart, N. B. Hershfield, M. T. Huxley, Ebrahim Ahmed Jangda, D. A. W. Johnson, Pretodial Ramsarran Kachan, Nomanali Sulemanji Khamballia, Kandiah Kaneshwaran, Wee Chye Lee, Michael Leser, Folorunso Ebun Akinboye Lesi, J. C. R. Lincoln, J. Yoke Keong Lip, Anne Llewellin, J. G. Madden, Gurmit Singh Mangat, K. Thulo Maphathe, Manmohan Singh Matharu, Yousuf Minty, Pandora M. Moorhead, C. L. Neilmeyer, Jit Seng Ng, P. F. Noone, P. Tebefia Odeghe, H. E. Ofsowitz, Elizabeth C. Ogden, Aaron Rosenberg, A. E. T. Stewart, P. A. Tan, Nazeer Hussain Vallani, Constance Mau Ying Wong.

Lieut.-General Sir Alexander Drummond's tenure of the appointment of Director-General of Army Medical Services, has been extended for one year to April 4, 1961.

Dr. R. H. Parry, formerly principal medical officer to the Bristol City Council and professor of preventive medicine, University of Bristol, has been appointed a member of the Local Government Commission for England, under the Local Government Act, 1958.

A service for doctors is to be held in All Souls Church, Langham Place, London, W.1, on Sunday, Oct. 18, at 11 a.m. Sir Geoffrey Marshall and Mr. Derek Walker-Smith will read the lessons. Applications for seats for doctors and members of their families should be made to the church secretary by Oct. 15.

Courses for orthopaedic and physical medicine consultants and senior registrars will be held at Roehampton or Oct. 5-9 (orthopaedics) and Nov. 4-5 (physical medicine). Further particulars may be had from the principal medical officer, Roehampton House, Roehampton, Londin, S.W. 15.

The London College of Osteopathy (25, Dorset Square, N.W.1) announces that the Leverhulme Trust Fund has provided a number of scholarships, each valued at £625, for British doctors taking the year's course in osteopathy which begins on Oct. 6.

Two sizes for tubular-framed invalid chairs for hospital use are specified in the latest addition (B.S. 3124: 1959) to the series of British Standards for hospital equipment. Size A is for adults weighing up to 18 stones; size B is for children and young people. Copies of the Standard (4s.) may be had from the British Standards Institution, Sales Branch, 2, Park Street, London, W.1.

CORRIGENDUM: *Ætiology of Infective Disease.*—The price of this book was given incorrectly in our review (July 18, p. 26). Is is 27s. 6d.

In an advertisement (July 18) for a geriatric post in Saskatchewan the salary was given wrongly: it is $ 1007 -$ 1225 per month.

The Lancet - Saturday 8 August 1959

GASTROINTESTINAL PROTEIN LOSS IN SEVERE MALABSORPTION COMPLICATED BY IDIOPATHIC (HYPERCATABOLIC) HYPERPROTEINÆMIA

W. F. YOUNG
M.A., M.D. Cantab, D.C.H.
RESEARCH CLINICIAN

BARNETT LEVIN
M.D., Ph. D. Lond.
PATHOLOGIST

QUEEN ELIZABETH HOSPITAL FOR CHILDREN, LONDON, E.2

J. F. FOWLER
Ph. D., M. Sc. Lond., F. Inst. P.
PRINCIPAL PHYSICIST

J. M. MILES
B. Sc. Lond.
RESEARCH ASSISTANT

KING'S COLLEGE HOSPITAL, LONDON, S.E.5

THE term idiopathic hypoproteinæmia has been used to distinguish low plasma-albumin concentrations of unknown cause from those in which the cause seemed obvious—for example, those associated with nephrosis, gastrointestinal disorders, or malnutrition due to insufficient dietary protein. Albright et al. (1949) found an increased breakdown of albumin in a patient with idiopathic hypoproteinæmia, and Kinsell et al. (1950) confirmed this observation. Similar results have been obtained in children by Ulstrom et al. (1956, 1957), using human serum-albumin labelled with the radioactive isotope ^{131}I.

The distinction between idiopathic and other types of hypoproteinæmia based on an increased rate of catabolism of plasma-albumin is incomplete, however, for Gitlin et al. (1956) found that in nephrosis the low plasma-protein concentrations are due not only to urinary losses of albumin, but also increased catabolism.

Until recently the mechanism of this apparent increase in catabolism in any of these conditions has not been explained. A possible mechanism would be the leakage of protein into the digestive tract, where the breakdown would then take place.

Citrin et al. (1957) found a significant loss of ^{131}I-labelled human serum-albumin into the stomach in a patient with hypertrophic gastritis and hypoproteinæmia. Similar conclusions about loss of protein into the digestive tract were reached by Steinfield et al. (1957) in patients with regional enteritis and ulcerative colitis. Turnover studies with ^{131}I-labelled human serum-albumin would not be expected to give any information about the possibility of the digestive tract being the site of catabolism, because tracer ^{131}I (detached during the breakdown of the albumin) would be rapidly reabsorbed through the walls of the digestive tract, and excreted by the kidneys.

Gordon (1958) injected ^{131}I-labelled polyvinylpyrrolidone (P.V.P.) intravenously in idiopathic hypoproteinæmia. P.V.P. is a biologically inert substance of high molecular weight, containing a range of molecular weights (15,000–117,000) with an average of about 40,000, which has been used to restore plasma-volume (Ravin et al. 1952). When given intravenously, less than 1-5 % of the labelled P.V.P. appears in the fæces in normal human subjects (Gordon 1959, Schwartz and Jarnum 1959). Thus, since it is not susceptible to digestion, any leakage of P.V.P. from the plasma into the digestive tract is shown by the substance appearing in the fæces in significantly greater quantities. Such leakage occurred in nine cases of "hypercatabolic" hypoproteinæmia investigated by Gordon, and in four by Schwartz and Jarnum. Their cases were not suffering from obvious alimentary disorders at the time their hypoproteinæmia was first observed, and their presenting clinical feature was massive œdema.

The findings decribed here are in a child who presented at the age of 3 years with massive œdema and ascites associated with steatorrhœa and severe hypoproteinæmia, believed at first to be secondary to malnutrition due to malabsorption. Extremely low serum-protein levels persisted, however, even after dietary therapy had greatly improved his nutrition and brought his growth-rate to normal. A search for another cause for the hypoproteinæmia was therefore instituted.

Case-report

This boy, who was born on Aug. 26, 1947, will be described in greater detail in a review of atypical cases of the cœliac syndrome treated at the Queen Elizabeth Hospital for Children in recent years. He had a poor social background, and is one of a large family, including his identical twin. None of the relatives has any obvious disability, and the twin has been investigated exhaustively for subclinical evidence of cœliac traits, with negative results.

He became ill in 1951, when aged 3 years 8 months, and gave a short history of diarrhœa, vomiting, œdema, and ascites. He was found to have steatorrhœa and hypoproteinæmia, the total protein concentration being about 4.0 g. per 100 ml. and the albumin concentration about 3.0 g. per 100 ml., with a corresponding reduction in the gamma-globulin level. Treatment with a high-protein, starch-free diet resulted in clinical improvement, but the hypoproteinæmia persisted.

It was assumed that his alimentary function would improve on a gluten-free diet alone without fat or starch restriction, as in cœliac disease (Weijers and van de Kamer 1950, Anderson et al. 1952), but in view of the hypoproteinæmia, a high-protein diet was also prescribed. During the next four years (1952-56), however, the child's nutrition deteriorated progressively. He was stunted, with a retarded bone age, and his bones were poorly calcified with clinical and radiological signs of rickets. The severity of his alimentary symptoms and the degree of œdema and rickets, were variable. The serum-protein concentrations remained at about the same levels: total 3.0 g. and albumin 2.0 g. per 100 ml.

At the end of this time the patient was transferred to the care of one of us (W.F.Y.). Stricter dietary control of the alimentary disorder was introduced (easily assimilable foods to supply a high-caloric, high-protein, low-fat, and starch-free intake) and during the next two years (1956-58) his nutrition became normal with regular increments in weight and height. He no longer had œdema or ascites at any time. Evidence of malabsorption persisted (bulky stools and radiographic evidence of small-bowel dilatation), but he was able to tolerate a very high intake of calories and protein. Serial serum-protein levels, however, from 1956 to 1958 remained unchanged at about 3.0 g. total and 2.0 g. albumin per 100 ml., with gamma-globulin about 0.3 g. per 100 ml. Since adequate synthesis of skeletal protein was now apparent, the persistently low serum levels were unexpected.

Turnover studies using ^{131}I-labelled human serum-albumin (H.S.A.) (labelled by Dr. A. S. McFarlane at the National Institute of Medical Research, Mill Hill) were therefore carried out in 1957. The results showed that 67 % of the plasma content was being broken down daily (Fowler and Miles 1958), whereas the breakdown-rate in a normal subject is 8-10 % per day (Freeman and Matthews 1958). Moreover it is believed that this figure for normal breakdown applies also to children older than a few weeks. The dissociated ^{131}I appeared in the urine, except for about 5 % which was found in the fæces on the second day. Analysis of the fæces showed, however, that this fæcal ^{131}I was all free iodide, and did not therefore confirm a leakage of H.S.A. into the digestive tract. On the basis of his own observations (Gordon 1958), Gordon suggested that our patient should be tested with ^{131}I-labelled P.V.P., which he kindly provided.

At the time of the present investigations the patient was active and apparently well. The usual high-caloric, high-protein (about 100 g. per day), low-fat, and low-starch diet was given. He had no diarrhœa, but the stools were usually loose. His weight increased steadily from 30.5 kg. to 35 kg. during the 18 days of the investigation but no œdema or ascites was detected clinically.

Notes and News

A COLLEGE CONFERENCE

The Royal College of Physicians of London have chosen Pathogenesis and Treatment of Occlusive Arterial Disease as the subject of their next conference, which is to be held on Nov. 13 and 14. Sir Robert Platt, the president, will take the chair at the first session, on the pathogenesis of occlusive arterial disease, when the speakers will include Prof. J. H. Dible, Prof. C. V. Harrison, Sir Howard Florey, Dr. G. J. Popjak, Dr. J. C. F. Poole, and Prof. G. Payling Wright. Dr. J. St.C. Elkington will be in the chair in the afternoon, when Dr. E. C. Hutchinson, Prof. J. W. D. Bull, Mr. Wylie McKissock, Prof. C. G. Rob, Dr. D. A. Shaw, and Dr. John Marshall will discuss cerebral vascular disease. On Saturday, the 14th, Dr. D. Evan Bedford will be the morning chairman at a session on coronary-artery disease at which the speakers will be Dr. J. N. Morris, Dr. M. F. Oliver, Dr. Aubrey Leatham, Prof. R. S. Pilcher, Dr. A. Rae Gilchrist, and Dr. Rosemary Biggs. Prof. John McMichael will open the discussion. In the afternoon Sir George Pickering will preside over a session on peripheral vascular disease to which Dr. Lawson McDonald, Prof. Henry Barcroft, Dr. W. G. Oakley, Dr. J. F. Goodwin and Prof. J. B. Kinmonth will contribute.

Like the earlier college conferences the meeting is primarily arranged for fellows and members who are consultants in medicine or pathology. Numbers may have to be limited and early application should be made to the registrar at the college, Pall Mall East, S.W.1. The entrance fee of 5 guineas (which includes lunches and dinner) should accompany the application.

AN ANGLO-ITALIAN JOURNAL

The 50th anniversary of *Minerva Medica* is being marked by the publication of the first issue of a monthly English review of Italian medicine. The new *Panminerva Medica*, which is sponsored by the Italian Medical Association, will include translations of original articles (or abstracts of articles) from the 40 journals of the *Minerva Medica* editorial group. The annual subscription is £3 10*s*., and further particulars can be had from Edizioni Minerva Medica, Corso Bramante 83-85, Torino, Italy.

University of London

The title of professor emeritus has been conferred on Prof. R.J.S. McDowall, on his retirement from the Hallibarton chair of physiology at King's College, on Prof. F.C. Ormerod, on his retirement from the chair of laryngology and otology at the Institute of Laryngology and Otology, on Prof. J.H. Woodger, on his retirement from the professorship of biology at the Middlesex Hospital Medical School, and on Prof. H.R.B. Fenn, on his retirement from the chair of dental prosthetics at Guy's Hospital Medical School.

University of Liverpool

At recent examinations the following were successful:

M.D.—D. Annis, Winifred J. A. Francis, F. D. Kitchin, B. W. McGuinness, G. W. Pennington, H. Wilson.

Ch.M.—Frances Selsnick.

D.M.R.D.—M. A. Bloomfield, A. Dutt, N. Geffen, P. P. Keith, M. I. M. Nilar, R. A. Owen, H. P. Tulloh.

D.M.R.T.—A. Kumar, B. N. Roy.

D.P.H.—A. Afnan, J. A. Black, Jean O.R. Carmichael, Irene L. Chesham, Irene M. J. Cox, J. S. Doyle, G. P. Evans, Madge Farmer, A. J. Graham, J. R. Jones, J. Keane, W. Manwell, S. R. W. Moore, D. R. Morris, June Nelson, J. O'Gorman, Gladys I. Wilson, H. E. Wilson, Margaret T. Wood.

University of Durham

On July 4 and 5 the following degrees and diplomas were conferred:

M.D.—Millicent Payne, R. O. K. Schade, C. G. Tulloh, J. H. Walker, *Dennis Whitehouse.

M.B., B.S.—W. J. Atkinson, Herman Anker, Shirley M. Arthur, J. M. Barker, D. W. Bethune, Lily Burn, Hazel Butler, Hubert Campbell, Ian Capstick, A. M. Carr, *C. D. Caplan, *A. Sai-Yee Chao, D. W. hapman, Mary E. Cheshire, John Croudace, Ann M. Crump, E. C. Davies, P. M. J. J. Dee, *I. A. Drysdale, D. W. Forster, Lorna A. Gregory, Judith M. Heron, W. A. Hewitson, *Margaret K. Huddart, F. A. Ive, Mohammed Ali Izadi, P. A. Johnson, L. J. Kinlen, J. R. Kirkpatrick, Nii-Osa Kwao, C. J. N. Lawson, I. G. Lloyd, J. M. McLean, T. R. Martin, Cedric Maunder, I. A. Miller, R. A. Moffett, T. E. Nelson, *Olatokunbo Basti Onibuje, J. Kwaku Owusu-Ansah, D. T. Pearson, Elisabeth V. Rafique, Thomas Reynolds, T. J. Richards, A. M. Robson, G. D. Shapero, W. Y. Sinclair, Margaret Slater, Stephen Steel, Sheila Stein, Frances E. Thompson, *Kishor Varde, J. B. Wade, Colin Waine, J. R. Waring, Fenwick Wills, Anne H. Young.

D.P.M.—Pritam Lal Kalra, Peter Morgan.

* in absentia

University of Glasgow

On June 17, Lord Boyd-Orr, as chancellor, handed to Sir Hector Hetherington, the principal, a cheque for £450 which has been subscribed to found a Graham Kerr prize. This will be awarded annually to one or more final-year honours students in zoology.

On July 4 the following degrees were conferred:

M.D.—W. M. Borthwiew, W. A. J. Crane, and A. N. Smith (with honours); M. K. Browne, John Macvicar, Goldwyn Slare, anr T. S. Scott (with commendation); S. D. S. Park.

Ch.M.—H. L. Duthie (with honours).

Ph.D.—T. A. H. Pasieczny.

University of Aberdeen

On July 10 the honorary degree of LL.D. was conferred on Prof. E. W. H. Cruickshank and Prof. Michael Polanyi.

On July 9 and 10 the following degrees were conferred:

M.D.—I. A. Cook (with honours); I. Mc.I. Duguid, J.S. Finnie, R. R. Mowatt, I. G. Thomson.

M.B., Ch.B.—W. D. Mackay (with honours); W. R. Greig, Anne Lundsgaard, A. S. Markenzie, R. A. Yuill (with commendation); T. K. Agble, I. W. W. Anderson, E. B. Asiedu, Rita M. Baillie, Gabrielle A. M. Baird, Sylvia T. Ballard, Alison F. H. Birnie, A. J. Buchan, Betsy M. A. A. Cavallo, J. H. Chinnock, G. I. Cohen, Joan M. R. Colt, C. McK. Corser, H. R. rofts, A. I. Davidson, A. M. Duthie, J. A. Duthie, A. J. D. Farquharson, Deji Femi-Pearse, J. A. M. Findlay, Glenn Foubister, W. C. Gordon, Elizabeth S. Harper, J. L. Hay, A. S. Henderson, J. W. Hunter, Anne Lejeune, Donald Lipp, Elizabeth Luke, William Macdonald, I. A. Macfarquhar, D. R. Mackay, Harry McPherson, Iain Mathewson, Audrey M. Morgan, G. D. Morrice, W. J. Morrison, Leonora J. H. Murray, R. M. Preshaw, Winifred Proudfoot, John Reid, C. M. T. Robb, D. A. Robertson, J. G. Robertson, J. W. Robertson, George Russell, E. L. Smith, Anne E. Staddon, Joan Stephenson, G. M. Stewart, Beryl M. Stone, A. B. Thain, Irene A. Watson, David Wiseman, Audrey W. Young.

Royal College of Physicians of Ireland

On July 3 the following were admitted to the licentiateship of the college:

Adrienne M. Grahame-Ballin, P. J. Breen, S. M. Bridburg, Deirdre M. Burns, J. F. Butler, Perry Caplan, M. H. Compion, Osman Oktay Dervish, Bozena H. M. Docherty, D. J. G. Docherty, Joseph Fernando, D. E. Fitzgerald, Carmin H. Grange, E. E. Gulland, Ezekiel Iyobu Simon-Hart, N. B. Hershfield, M. T. Huxley, Ebrahim Ahmed Jangda, D. A. W. Johnson, Pretodial Ramsarran Kachan, Nomanali Sulemanji Khamballa, Kandiah Kaneshwaran, Wee Chye Lee, Michael Leser, Folorunso Ebun Akinboye Lesi, J. C. R. Lincoln, J. Yoke Keong Lip, Anne Llewellin, J. G. Madden, Gurmit Singh Mangat, K. Thulo Maphathe, Manmohan Singh Matharu, Yousuf Minty, Pandora M. Moorhead, C. L. Neilmeyer, Jit Seng Ng, P. F. Noone, P. Tebefia Odeghe, H. E. Ofsowitz, Elizabeth C. Ogden, Aaron Rosenberg, A. E. T. Stewart, P. A. Tan, Nazeer Hussain Vallani, Constance Mau Ying Wong.

Lieut.-General Sir Alexander Drummond's tenure of the appointment of Director-General of Army Medical Services, has been extended for one year to April 4, 1961.

Dr. R. H. Parry, formerly principal medical officer to the Bristol City Council and professor of preventive medicine, University of Bristol, has been appointed a member of the Local Government Commission for England, under the Local Government Act, 1958.

A service for doctors is to be held in All Souls Church, Langham Place, London, W.1, on Sunday, Oct. 18, at 11 a.m. Sir Geoffrey Marshall and Mr. Derek Walker-Smith will read the lessons. Applications for seats for doctors and members of their families should be made to the church secretary by Oct. 15.

Courses for orthopaedic and physical medicine consultants and senior registrars will be held at Roehampton on Oct. 5-9 (orthopaedics) and Nov. 4-5 (physical medicine). Further particulars may be had from the principal medical officer, Roehampton House, Roehampton, Londin, S.W. 15.

The London College of Osteopathy (25, Dorset Square, N.W.1) announces that the Leverhulme Trust Fund has provided a number of scholarships, each valued at £625, for British doctors taking the year's course in osteopathy which begins on Oct. 6.

Two sizes for tubular-framed invalid chairs for hospital use are specified in the latest addition (B.S. 3124: 1959) to the series of British Standards for hospital equipment. Size A is for adults weighing up to 18 stones; size B is for children and young people. Copies of the Standard (4*s*.) may be had from the British Standards Institution, Sales Branch, 2, Park Street, London, W.1.

CORRIGENDUM: *Ætiology of Infective Disease*.—The price of this book was given incorrectly in our review (July 18, p. 26). Is is 27*s*. 6*d*.

In an advertisement (July 18) for a geriatric post in Saskatchewan the salary was given wrongly: it is $1007 -$1125 per month.

nded to
or £450
r prize.
nal-year

:
. Smith
n Slare,

nferred
Polanyi.
nferred:
Finnie,

. Greig,
mmend-
u, Rita
on F. H.
innock,
ts, A. I.
on, Deji
Gordon,
Hunter,
m Mac-
Pherson,
, W. J.
Vinifred
n, J. G.
h, Anne
Stone,
rey W.

licen-

idburg,
mpion,
pcherty,
e, E. E.
, M. T.
retodial
Kandiah
o Ebun
, Anne
Thulo
Pandora
Noone,
Aaron
Valiani,

of the
ervices,

to the
edicine,
of the
e Local

Church,
11 a.m.
ll read
embers
ary by

ultants
Oct. 5-9
Further
officer,

N.W.1)
ided a
British
gins on

ospital
to the
ze A is
hildren
be had
l, Park

rice of
ily 18,

n San-
-$ 1225